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DECEMBER, 1916.

THE ART OF MEDICINE IN THE AGE OF HOMER.

The Presidential Address, delivered on November 8th, 1916, at the opening of the Forty-third Session of the Bristol Medico-Chirurgical Society.

BY

F. H. EDGEWORTH, M.D., D.Sc., M.A.

Professor of Medicine, Bristol University; Physician to the Bristol Royal Infirmary; Major, R.A.M.C. (T.).

LAST autumn, as you will remember, men invalided with dysentery from the Peninsula of Gallipoli came in large numbers into English military hospitals. As they grew better they had much to tell of Mudros and of the fighting on the northern shores of the Dardanelles. Their stories called up memories of another and more successful expedition which gathered in the great Bay of Lemnos three thousand years ago, and landed on the southern shore of the Hellespont to lay siege to the citadel of Troy. The history of a small and most tragic portion of their ten years' warfare is found in the verses of Homer. Imbedded in this wonderful narrative there are matters of interest to students of primitive

religion, mythology, folk-lore, ethnology, geography, primitive civilisation, and to doctors also. Many details are given of combats, of the weapons used, of the wounds inflicted, of the primitive means employed to cure them, and of a great epidemic, and mention is made of the doctors in the Greek host.

It may perhaps be of some interest if I try to gather these scattered references together into what might be called a medical history of the Trojan War, and tell you what little there is known of Asklepios, whose badge and sign all Army Doctors wear.

It does not fall within my province to discuss what hints there are in the pages of Homer as to the causes or the progress of the Trojan War. It is probable that, like many a subsequent one, it arose primarily from economic grounds. Troy lay near the mouth of the Dardanelles, was a great trade centre, and formed a barrier to any easterly Greek expansion. The abduction of Helen was a matter of secondary importance. The Greeks landed at the mouth of the Scamander, opposite Cape Helles, and constructed an entrenched camp, Lemnos serving them as a base from which provisions were brought. They never succeeded in actually surrounding Troy. Even in the tenth year of the war its allies could enter from the east. The fighting took place in the broad river valley which lay between the citadel of Troy and the Greek camp. The warriors were armed with spears and swords, bows and arrows, and carried long oval shields, and the chieftains probably had defensive armour. The chieftains of either side fought in the forefront of the battle, coming forward from the crowd of fighting men to throw spears or to engage in duels.

In this fighting spear wounds were by far the commonest. As might be expected, most of those in the head and body were immediately fatal. Thus Odysseus killed Demokoon by a spear which struck him in the temple, and the bronze

point pierced through to the other temple and darkness covered his eyes. A spear might rebound from a helmet, in some cases causing concussion, or might pierce it. Thus "Diomedes threw a spear at Hector, but the bronze (spear-point) rebounded from the bronze (helmet) nor reached the flesh, for his three-layered helmet protected him. Hector ran back, fell on his knee leaning with heavy hand on the ground and black night covered his eyes, and after a brief space regained consciousness." Pandaros, the great archer, was killed by Diomedes, "The spear entered his nose beside the eye and pierced his white teeth and cut through the root of his tongue and came out in the lower part of his chin, and he fell dead from his chariot." Many similar wounds are mentioned. Thus Teukros killed Imbrios, wounding him below the ear with a long spear, and he fell "like an ash tree which on the summit of a far-seen mountain is cut down by an axe and sheds its tender leaves on the ground." Archelochos was struck by a spear "at the junction of the head and neck just below the astragalos, and it cut through both tendons, and he fell headlong." Another wound of the neck is described as follows: "Antilochos wounded Thoas as he turned and cut through the blood vessel which running up the back reaches the neck, and he cut right through it, and Thoas fell headlong in the dust." The word used is φλέψ, literally "vein," but it is not probable that any distinction was drawn between arteries and veins in those ancient days; possibly the carotid was cut through.

Many chest wounds are mentioned. Thus Simoeisios was struck in the right breast, "and did not live to requite his parents' care." Alkathoos was struck in the chest by a spear, and "his struggling heart shook the point of the spear, until the mighty Ares (god of battle) took away its strength."

Wounds of the abdominal wall were sometimes recovered from. Thus Odysseus was struck by a spear " which tore the flesh from his side, but Pallas Athene did not permit it to mingle with his entrails." Hypsenor was wounded in the liver below the diaphragm, and " god-like Alastor and his two dear comrades stooping down carried him away to the hollow-ships groaning deeply." Wounds of the lower part of the abdomen were considered especially dangerous. Adamas, for instance, was struck by a spear in that part " where the fate of war is most grievous for unhappy mortals, and he gasped a little time but not very long."

Spear wounds of the extremities were seldom fatal. Thus Helenos was struck in the hand and " Agenor dragged the spear out and bound it up with the well-twisted wool of a sheep (a sling)." And Deiphobos was pierced in the arm by Meriones, who " leaping forwards like a vulture dragged out the sturdy spear and retreated, and Polites his own brother stretching his arms about his middle led him from the dreadful battle till they came to the swift horses, who bore him to the town groaning deeply and in sore pain for the blood poured from his newly-wounded arm." In the heat of battle such wounds might be disregarded for a time. Agamemnon, wounded in the hand, went on fighting, and killed many " whilst the warm blood flowed from the wound, but when the wound dried and the blood ceased then sharp pains afflicted him." There is a graphic description of a wound received by Sarpedon, who was struck in the left thigh right down to the bone, and " his comrades bore him from the battle and the long spear dragging along the ground distressed him, for no one thought of pulling out the ashen spear so that he might walk, so hurried were they. But the mighty Pelagon pulled the ashen spear from his thigh."

Though every chieftain wore a sword, and apparently

used it for close fighting or in killing an enemy whom he had wounded with a spear, there are but few cases in which sword wounds are described. Two heroes, Hypsenor and Hypeiron, were killed by a sword stroke which cut off the arm at the shoulder or through the collar bone, and Kleoboulos was struck in the neck and " the whole sword was dyed red with blood, and purple death and a cruel fate closed his eyes."

The use of an iron club as a weapon was apparently antiquated. We hear of only one Greek chieftain (Areithoos) who was so armed, and of another (Ereuthalion) killed by Nestor in his youth long before the Trojan War.

When other weapons failed great stones were hurled at the enemy, and we hear of many being killed or wounded in this way, struck in the head, neck, elbow or calf. The two most famous incidents are the wounding of Aineias and Hector. Aineias was struck by a large stone, thrown by Diomedes, " just where the thigh-bone turns in the hip, and people call it the hip-pan, and it broke the two tendons and the hero fell on his knees and hands." And Ajax, " not the weakest of the Achaians," " struck Hector in the chest with a stone, and he fell in the dust like an oak struck by lightning, and his companions bore him to his chariot standing a little way behind, and when they came to the ford over the Scamander they poured water over him, and he breathed again and looked round and, sitting up, spat dark blood and then again sank back, his soul oppressed by a grievous panting and unconscious."

Some of the Greek contingents, for instance the Locrians, entered the battlefield, armed not with spears or swords, but only with bows and arrows and slings, but no mention is made of their exploits. Descriptions of individual deeds with bows and arrows, as with all other weapons, are limited to those of chieftains. Amongst noted archers the Greek

Teukros and the Trojan Pandaros were especially noted. There is a famous description of the latter, who "took out of the quiver a winged arrow unshot before, the foundation of black pains, and quickly fitted it to the bowstring, and vowing a glorious hetacomb of new-born lambs to Apollo the Archer when he returned home to the city of sacred Zeleia, took and drew the notches of the arrow and the bowstring, and brought the bowstring to his breast and the iron (point of the arrow) to the bow. And when he had drawn the great bow to a circle the bow rang and the bowstring twanged and the arrow leapt forth desirous of flying into the host." Such arrows might directly kill a man; thus Euchenor was struck below the jaw and ear, and Kleitos was struck in the back of the neck. Both wounds were immediately fatal. There is a graphic description of a wound of this nature which implies some anatomical knowledge. Harpalion was struck in the right buttock by an arrow, and "it pierced to his bladder below the bone, and he sat down in the arms of his dear comrades breathing out his life, and the black blood flowed and wetted the ground, and the great-hearted Paphlagonians busied themselves about him."

More often arrow wounds were not, at any rate immediately, fatal, but were dreaded because the arrows might be poisoned, a fact we are still reminded of in the words "toxic" and "toxin," which are derived from τόξικον "belonging to an arrow." In the *Odyssey* we hear of Odysseus taking a journey to Ephyre, in Thesprotia, to ask Ilos, son of Mermeros, for a man-slaying drug to smear on his bronze-tipped arrows. The presence of such an arrow-poison is perhaps implied in the description I have just read—an arrow "unshot before"—and in other phrases. We do not know whether mention of the use of arrow poison is omitted by expurgation, as Murray thinks,

or whether the practice was already passing away. But in any case it was beginning to be thought barbarous. Thus Ilos, son of Mermeros, fearing the wrath of the eternal gods, would not give Odysseus the poison he asked of him, but Anchialos, king of the Taphians, a robber and piratical people, was less scrupulous, and gave it, "for he loved Odysseus terribly."

The method adopted for the treatment of arrow wounds is recounted on two occasions. When Menelaos was struck by the arrow shot by Pandaros, Agamemnon, his brother, sent for Machaon, the army doctor, who was found in the midst of warriors who had followed him from Trikke, and "Machaon pulled the arrow from the belt, and the sharp barbs were bent back as the arrow was dragged back . . . and when he saw the wound where the arrow had entered he sucked the blood out of it and put on it soothing drugs which the kind-hearted Cheiron had given his father." Later on in the battle Eurypylos returned to the ships, "limping from the battle with an arrow in his thigh, and sweat ran from his back, shoulders and head, and black blood gushed from the grievous wound, but his mind was unshaken." Patroclos met him, and taking him under the breast led him to the hut, and his page having spread ox-hides for him to lie on, "Patroclos cut out the sharp, painful arrow from his thigh with a knife, and washed away the black blood with warm water, and put on it powder rubbed from a sharp root, which checked the pain, and the wound dried and the blood ceased."

We are not told how the root acted, but Paion, the physician to the gods, put similar pain-allaying drugs on the wound of Ares, and it is stated that they acted like a sap which curdles milk. Perhaps, then, the powdered root was astringent.

The treatment of wounds in those ancient times would

thus appear to have been very simple. The first "field-dressing," if we may so call it, was anything available, for instance a sling, which would stop the bleeding. Subsequently the arrow was pulled or cut out, the wound either sucked on the field of battle, or washed with warm water at the "base," and some astringent powdered root dusted on it, which allayed the pain and stayed the bleeding.

The Machaon mentioned above and his brother Podaleirios were, according to Homer, the sons of Asklepios, "the noble physician," who lived at Trikke, in Southern Thessaly, and had learnt his art from Cheiron, the "most just" of the Centaurs, a savage tribe living in the hills near Mount Peleion. The Centaurs were probably one of the autochthonous races of the Greek Peninsula, which persisted after the invasion of the Achaians from the north. Cheiron imparted his knowledge of simples to others besides Asklepios, for instance to Achilles, who in his turn taught Patroclos.

Asklepios was an old man at the time of the Trojan War, and not able to fight himself, but his two sons Machaon and Podaleirios set sail with thirty ships to the siege of Troy. They served both as chieftains and as army doctors. They fought in the front ranks as *πρόμαχοι*, and treated wounds. We do not hear that any other doctors accompanied the Greek army, though there were probably some. Thus Agamemnon, speaking in general terms, said that "a doctor is a man worth many others, both to cut out arrows and to lay on them soothing drugs." And in the *Odyssey* a doctor is classed with seers, hewers of ships' timbers, and inspired bards as being "the bidden guests of mortals throughout the illimitable earth." We are told very little of the exploits of the brothers, but finally Machaon was wounded, struck in the right shoulder by an arrow from the bow of Alexander. Whereupon Machaon mounted the chariot of Nestor, who "whipped up his horses, and they

willingly flew back to the hollow ships." On arriving at Nestor's hut, Hekamede, a handmaiden captured by Achilles at Tenedos, made for them a curious drink of yellow honey, barley meal, and Pramnian wine. The garrulous Nestor, after relating one of his long stories, departed to an observation post, bidding Machaon stay on and drink his wine until such time as the fair-haired Hekamede should heat some water to wash away the blood.

He was left in good hands, for we are told that his nurse "exceeded in counsel" all those taken captive at Tenedos; we may perhaps hope that he returned home in safety. The fate of his brother, Podaleirios, is more uncertain, for the last we hear of him is that he was "leading on in the fierce battle on the Trojan plain."

Thus, according to Homer, Asklepios was a Greek chieftain who acquired his primitive knowledge of surgery and medicine from Cheiron, and handed it on to his sons Machaon and Podaleirios, who served in the Greek army. The story seems simple and intelligible; but in reality the problem of the personality of Asklepios is extraordinarily complicated. Some light has been thrown on it by the study of Greek art and mythology. In Greek sculpture we find representations, first of a huge coiled serpent, secondly of an immense snake accompanying a venerable old man leaning on a staff, thirdly of an old man round whose staff coils a diminutive snake, and lastly of an old man without either staff or snake. The last-named figure is identified with Asklepios. These probably represent four stages in the development of a god, and the word "Asklepios" is derived from a root which means to "wriggle." Asklepios was thus not an Homeric hero who was deified in later ages, and the worship of whom supplanted that of some old snake-god, but the snake-god himself, who subsequently assumed human shape. It is remarkable that the badge

of the Royal Army Medical Corps does not represent the Homeric hero, but a deity whose origin is far anterior to that of the Trojan War.

I cannot here trace the spread of the worship of Asklepios in Grecian lands, nor the development of surgery and medicine between the age of Homer and that of Hippocrates. Probably in earlier times people visited temples of Asklepios to consult the gods by dreams, at first for any purpose, and subsequently for relief from suffering. The priest aided in the interpretation of dreams by his knowledge of simple remedies, and gradually a separation of the offices of priest and doctor took place. The knowledge and skill of these temple doctors, or sons of Asklepios, increased as the years passed by, and were in many cases handed down from father to son. Thus in the works of Hippocrates we find not only the results of his individual experience, but that of preceding generations of doctors at the shrine of Asklepios at Cos.

Although the *Iliad* opens with a magnificent description of a great pestilence which decimated the Greek army, we can gather very little knowledge of diseases from the pages of Homer. The treatment of the subject of this plague is poetic and moral rather than scientific. The poet relates how, in his great foray, Achilles had sacked the town of Chryse and taken prisoner the daughter of Chryses, priest of Apollo. In the distribution of the booty the captive girl was assigned to Agamemnon, who refused the ransom offered by her father. Whereupon he prayed to the god Apollo for vengeance, and "Apollo descended from the heights of Olympos armed with his bow and quiver, and as he strode in his anger the arrows rattled on his shoulders, and his aspect was dark as night. Seating himself far from the ships, he sent forth an arrow into their midst with a terrible clanging of his silver bow, and first he took aim at the mules and swift dogs, and then, loosing sharp

arrows at the men themselves, struck them down and, the pyres of the dead burned continually." This destruction continued for nine days, whereupon the Council was called together to consider what might be done. Chryses' daughter was sent back, and the pestilence abated.

The nature of this plague can be a subject for conjecture only. The *Iliad* is a poem, not a history, far less a medical history, of the Trojan War, and was written at a date long subsequent to the events recorded. Possibly the plague, which affected man and beast, was dysentery, for this disease has been endemic in the Mediterranean basin for thousands of years. It was described by Hippocrates in the fifth century B.C. It existed in Malta when the Apostle Paul was wrecked there in A.D. 62. We read that he was lodged at the house of Publius, the chief man of the island, and healed his father, who "lay sick of a fever and of a bloody flux." Last year it destroyed mules and many thousands of our men in Gallipoli, just across the Hellespont from Troy.

Whatever the nature of the pestilence, the description suggests that the ancient Greeks regarded disease as due to the attack of some god or demon. This is borne out by the few references to illness and death that we find in other parts of the Homeric poems. When Odysseus was wrecked from his raft on his homeward way he was thrown into the sea, and, supported by the veil of Ino the sea-goddess, swam for two days and two nights. On the third day he caught sight of the land and woods of Scheria from the top of a wave, and was, so we read, "as glad as are the sons of a man who had been attacked by some demon and afflicted with much pain and wasting, and whom the gods at length had delivered from his illness." And in the happy island home of the childhood of Eumaios "no hateful disease affected mortals, but when the races of men grew

old, silver-bowed Apollo with Artemis killed them with his painless arrows."

The clear-sighted Homer saw, too, that men might bring evil and death prematurely on themselves, and he puts this remarkable saying in the mouth of Zeus: "Mortals blame the gods and say evils come from us, but they themselves suffer through their own folly beyond that which fate allotted to them" (*ὑπὲρ μόρον*).

There are two instances of aphasia related. The phrase employed is *ἀμφασία ἐπέων*, a speechlessness of words. Thus Antilochos, on hearing of the death of Patroclos, and Penelope, on learning of the plans of her suitors to kill her son, became speechless. The condition was an emotional one and temporary—Penelope's eyes filled with tears and her heart and knees trembled. There is no mention of any abiding aphasia.

Of medicines we hear but little. Nestor in his youth killed Moulios, who had to wife the eldest daughter of Augeias, the fair-haired Agamede, "who knew all the drugs the broad earth bears." This, taken in association with the above-mentioned treatment of wounds, suggests that there was already some knowledge of simples. This knowledge was sometimes turned to baser uses. In the *Odyssey* we read that the suitors feared that Telemachos might be intending to bring poisonous drugs from Ephyra, which he would put into the wine and destroy them. It will be remembered that it was from Ephyra that Odysseus obtained his arrow poison.

In a most famous passage of the *Odyssey* the use by Helen of a narcotic drug of Egyptian origin is described. The narrative tells how Telemachos visited Sparta in search of news of his father, and was told by Menelaos of the sad fate of many of the chieftains on their return from Troy, and, it continues, on hearing this they wept together in

common sorrow. Whereupon Helen threw in to their wine "a drug which had the power to remove grief and anger, and to cause oblivion of all ills, and whoever mixes it in his cup and drinks would not shed a tear during the whole day, not even if his father and mother should die, nor though one should slay his brother or dear son with the sword, and he should behold it with his eyes. Helen, the daughter of Zeus, possessed such helpful, noble drugs, given to her by Polydamna, the wife of Thon, in the land of Egypt, where the fruitful earth bears drugs, many noble, many baleful, and whose doctors are more intelligent than other men, for they are of the race of Paion."

Many suggestions have been made as to the nature of this *νηπενθὲς φάρμακον*—grief-allaying drug. Some have supposed it was cannabis indica, which is known to have been used in Egypt in the sixteenth century A.D. This narcotic seems to have been cultivated first on the slopes of the Himalayas, and thence to have spread east and west, but no traces of its hempen fibres have been found in the mummy cases of Egyptian tombs, and in the time of Herodotus it had only penetrated as far as Scythia. A more plausible suggestion is that the drug was opium, for the poppy had been grown in Egypt from very early times, and Diodorus says that the secret of its qualities and preparation was preserved by the women of Thebes.

But there is no reference to opium in the genuine writings of Hippocrates, and its use and value were unknown to the early Greeks. The mention of it in the above passage appears to be a poetic use of some traveller's story.

In the foregoing pages I have attempted to describe the state of knowledge of medicine and surgery at the time of the Trojan War. But let me say in conclusion, though it is superfluous, that one does not read Homer for medical information. We read him for the glory and tragedy of

the events he narrates—for the scene between Hector and Andromache, for the story and ideals of young Glaucos, for the impassioned oratory of Achilles, for the tragic fate of Hector, for the piteous appeal of Priam. Though the beliefs and knowledge of the early Greeks differed greatly from those of to-day, the heart beat to the same emotions and the springs of conduct were identical. As Hector said: "It is not inglorious to die whilst defending his country, but his wife shall be safe and his children, and his house and inheritance shall be uninjured." Then, as now, "the fates have granted an enduring heart to man." Then, as now, "the race of men is as that of leaves, for some leaves the wind strews on the earth, but the verdant wood puts forth others, and so one generation of men springs up and another passes away."

THE EFFECT OF GENERAL CONDITIONS ON THE QUALITY OF THE TEETH.

The Presidential Address, delivered on June 30th, 1915, at the opening of the Session of the Bath and Bristol Branch of the British Medical Association.

BY

MAJOR W. R. ACKLAND, R.A.M.C. (T.),

President of the Bath and Bristol Branch of the British Medical Association.

THE choice of a subject for my address is not easy Something of general interest on which I can say anything new is difficult to find. Still thirty years' experience tends to form opinions which may be worth something; but I confidently ask your indulgent criticism in consideration of the great preoccupation of my time by my duty at the Military Hospital.

Much has been said and written of the *general troubles to which dental disease may give rise.* But while the subject is not threadbare, I want to talk to you to-night on rather the converse, namely the *effect of general conditions on the quality of the teeth.*

As a preliminary, I should like to recall to your memory that we regard caries of the teeth as being immediately due to one or both of two factors.

First of all a poor quality of tooth, and secondly unfavourable surroundings in a mouth whose secretions are vitiated. The teaching of pathologists in my time was rather in favour of supposing that a tooth was born either good or bad, and that its quality never varied throughout life. The secretions of the mouth might possibly vary from time to time, but as far as one could make out the tooth was a passive agent at the mercy of those secretions.

Now I hope to induce you to take a point of view which is the result of many years of clinical observation, namely that *a tooth is not a passive agent, that is to say, it is capable of vital resistance which varies according to the health of the patient, very much as we find the vital resistance in any other tissue does.*

I was led early to take this view from the fact that Bödecker, a well-known histologist, had attempted to prove that not only the dentine but also the enamel is penetrated everywhere by a network of living plasm derived from, though far finer, than the dentinal fibrils. More recently Mummery has demonstrated what every patient long ago knew to exist, namely a fine extension of nerve elements throughout the dentine right up to the under surface of the enamel. We should *a priori* expect this to be so in the case of a living tooth in a living body, but further consideration of other facts leads me to the strong opinion that *a tooth varies in quality from time to time according to the condition of health.*

And the reasons for my opinions are :—

1. First of all it is in the experience of us all that our teeth vary in sensitiveness from time to time, and I venture to assume that we may regard this as being due to the varying of the proportion of lime salts.

2. The existence of the " translucent layer." This is an appearance seen under the microscope surrounding decay which is supposed to be due to the sealing of the dentinal tubes by lime salts to prevent the nerve pulp being attacked.

3. The deposition of secondary dentine in the pulp chamber as a protection to the pulp, and the consequent withdrawal of the latter to a distance from the advancing decay.

4. The recalcification of softening areas in teeth which have started to decay. This is sometimes seen after the renewed health produced by a sea voyage.

5. The absorption and translucency of the roots of teeth attacked by pyorrhea. This is no doubt the result of a lowered vitality of the periosteum and tooth pulp. I believe I have done right in putting this before you at the start, because I do not see on what other theory we can explain the effects of many conditions on the teeth. We have to begin very early in considering what these conditions may be.

Hereditation.—Let us start with *hereditation.* Caries of the teeth may result from inheritance in various ways : (*a*) there may be a heritage of teeth of poor quality, or (*b*) of crowded jaws and irregularity, tending to produce disease, or (*c*) of congenital diatheses such as syphilis, gout, rheumatism, which undoubtedly act in producing caries in two ways, one by vitiation of the secretions, but perhaps more markedly by the tendency to lower the vital resistance of a tooth as they do of the rest of the body.

Maternal conditions.—Next in order I note the effect produced on a child's teeth by the ailments of pregnancy.

These effects chiefly make themselves felt by the temporary or baby teeth.

Bottle feeding.—I have no time to trace the cause which makes bottle feeding so bad for children's teeth, but you know that this is a well-established fact.

Childish ailments.—It is unnecessary for me to go closely into the explanation of the bad effect of childish ailments on the permanent set of teeth. I simply point out to you that the permanent set is being calcified during the first eight or ten years of life, and we may assume therefore that any lowering of health at various times by the diseases of childhood will leave their marks on the second set.

Mouth breathing.—The effects of mouth breathing have been brought to your notice at various times. The reason why this is so deleterious to the teeth is probably also known to you. Through the rapid evaporation, the teeth are no longer flushed with saliva, but are coated with an acid mucus instead.

Surroundings of childhood.—Now I should like to say a few words to you about the surroundings of childhood and the effects they produce on the quality of teeth. I am reminded to lay special stress on these from the following experience. Some years ago, during the life of a rich patient, we gave regular dental attention to the tenants' children on a model estate near Bristol. We were struck at starting by the fact that their teeth, though showing the usual neglect of their class, nevertheless evidenced little signs of decay. They lived in hygienic surroundings, and their parents being a selected class of sober habits with good wages, these children had good food, good air, and plenty of sleep. The case of these children affords the strongest additional evidence to my mind in favour of the theory that I was trying to prove just now, that a tooth is a very much more vital organ than we have been led to think, and that surroundings which

make for general good health give us a high vital resistance in such teeth. Of course, the other point proved is that during the time the teeth are being developed and calcified it is very important that the child should be in the best of health.

But I want to go into the effect of surroundings in detail. I need not attempt to prove to you that *bad air* may produce ill effects on the health, nor shall I trouble you to follow the effects of *bad food* on the growing child. The conditions which unfortunately prevail in the slums of our cities have a wretched effect on the health of the children, and of course we should expect their teeth to be *pari passu* affected.

Sleep.—But I am going to lay the greatest stress possible on the fact that these children from babyhood upwards never get enough of " tired nature's sweet restorer, balmy sleep." I do not think sufficient importance has ever been given to the *want of sleep* in considering the conditions affecting the health of children in our slums. I have been coming up from the Hospital very late occasionally, and have constantly seen youngsters and even babies about at all hours.

From the remarks I have made before you can see two reasons why the teeth of these children should suffer in quality. First of all during childhood, while the calcification of the second set is going on, a lowered vitality prevents these developing teeth from getting their proper share of formative material. In the second place, when attacked by decay their power of resistance is very poor.

I had better include here an observation on the effect of the *deficiency of lime salts in soft water districts.* We should naturally expect to find the children's teeth suffer, and this I found to be the case at Porlock, where the drinking water is derived from moorland streams.

So far I have been dealing with the conditions affecting the teeth of children. But there is not much to add in

the case of "children of a larger growth," viz. adults. Undoubtedly conditions affecting the general health act on the teeth of adults in a similar way, first by diminishing resistance, and secondly by vitiating the saliva.

Effect of age.—It is to be noted that the period of greatest decay is up to eighteen to twenty years. There is lessening decay up to the age of thirty. During middle life to fifty decay is least, and slightly increases again after that, if there are any teeth left, that is to say.

Occupation.—A few observations on the effect of *occupation* may be useful. I have noticed that workers in an atmosphere of sugar, starch or flour have their teeth very much affected, especially in the case of "mouth breathers," in whom the tidal air tends to dry up the saliva and deposit particles of these acid-producing agents on the teeth.

Pyorrhea Alveolaris.—I suppose just now no paper on the diseases of the teeth would be complete without a reference to *pyorrhea*. If I had been addressing you on the subject of general diseases caused by teeth, you would certainly expect to hear a good deal about it.

And in the present case, though I definitely stated that I was going to talk to you on the converse, namely the effect of general conditions on the teeth, the views I hold in regard to pyorrhea make me think it well within the scope of my title. In the greater number of cases I think pyorrhea is rather the effect than the cause. For example, rheumatism may and does cause pyorrhea many times more often than the other way round. There is not the slightest doubt in my mind that in many cases of commencing pyorrhea which I have seen amongst the wounded at the Hospital it has been due practically entirely to rheumatism and exposure in the flooded trenches; and when my medical colleagues have in these cases of rheumatism sent for me to treat the teeth as one method of treating rheumatism, I have wondered very

much why they sought further explanation of the rheumatism than their knowledge of the surroundings of these poor fellows last winter.

Some of these cases of commencing pyorrhea were clearly traceable to malaria, others to syphilis, some to mercury. Here I want to put on record that in my opinion the prevalence of pyorrhea is over-stated. I constantly get cases of supposed pyorrhea sent to me in which it does not exist at all, and I see innumerable cases of simple gingivitis in which there is no pus, and which therefore I should be disinclined to call pyorrhea.

In almost any person you like to examine pressure at the gum edge will extrude a whitish matter which some people mistake for pus. It is not so easily produced immediately after cleaning; in many cases it is simply dissolving debris of food which is lodged in the loose edges of the gums, especially when the teeth are not cleaned properly. Finally, in regard to pyorrhea, I am going to take full advantage of my position to-night to state most emphatically that in my opinion it is a dangerous obsession with many medical men and dentists, which is causing the loss of thousands of valuable teeth every day. The public papers have inoculated the lay mind with it, so that our patients have got it on the brain if they have not got it in their mouths. Every possible disease is attributed to this fancied condition. Even when there is no general disease present, teeth are condemned lest disease should arise. I am not saying that pyorrhea does not exist, I am not saying that it does not cause general symptoms in many cases, but I do repeat most seriously that cases are labelled pyorrhea which are nothing of the kind, and that valuable teeth are being sacrificed every day.

Let me give you an instance of the kind. Some years ago a well-known lady telegraphed from London for an appointment, and when she came she asked me to examine her

mouth, as if she were one of my regular patients coming to me periodically for that purpose. I did so, and found as I told her that she had recently been to her dentist, that perhaps as a "counsel of perfection" one tooth might be stopped, and that she would be better off for a small upper plate carrying four upper teeth, two bicuspids on either side. I should add that she had lost no other teeth. She then asked me to examine again more carefully, especially with a view to saying what teeth I should extract. I did so, and said, "There are none." She then said, "What about pyorrhea?" I replied, "You have not got it." There was a certain amount of recession of the gums associated with her age, which was fifty-eight, but there was no evidence whatever of pus or any congestive condition. She then proceeded to tell me her story. She had gone to her regular dentist for examination, and as he was away his partner examined her mouth, and started off by entreating her to have every tooth out. Of course I naturally asked if she had any symptoms of ill-health which induced him to take such an extreme view. "No," she said, "I am perfectly well, and the question of my health never arose." Well, to make a long story short, she kept her teeth, and I am able to tell you that after these many years she not only has them still, but her general health is as good as ever.

You will note that in speaking of the effect on teeth produced by congenital diatheses or the ailments of childhood I have made no reference to Hutchinson's teeth, gouty teeth, etc. As a matter of fact, we have found that it is misleading to associate definitely any form of ill-developed or, as we call it, hypoplasic tooth with a special disease. For instance, there is a good deal of congenital syphilis without Hutchinson's teeth, and there have been many ill-developed teeth called Hutchinson's teeth in cases where there was no congenital syphilis.

So far I have been dealing firstly with the general conditions which affect the development of teeth of good quality, and secondly with those conditions which maintain a good resistance. In other words, we have been considering the conditions affecting the defence to the exclusion of those affecting the attacking forces. In proceeding to discuss the latter I appear to be going beyond the scope of my title, for I am introducing some remarks on what is after all a consideration of local conditions. Yet as many of these are the result of the action of general conditions, I feel my address will be incomplete without them, but I will be as concise as possible.

What are the conditions of the mouth which constitute the attacking forces ?

Briefly, they are the presence of acid-forming organisms in the mouth acting on fermentable carbo-hydrates.

Before I discuss the possibility of preventing caries I should like to recapitulate a point or two. Firstly, that the development of good-quality teeth is dependent on :—

(*a*) A good inheritance.
(*b*) Good health in the mother.
(*c*) Hygienic surroundings in the child.
(*d*) Good, suitable food at regular times.
(*e*) Plenty of sleep.

Secondly, that the quality of the tooth once formed may vary with the health, especially during the years of growth.

Finally, I have to consider, as I said above, what promise there is of our being able to prevent decay altogether. Given a good inheritance and a good environment, a child ought to develop strong teeth with a good vital resistance.

Theoretically, according to Pickerill, it ought to be possible, having set up such good defence, to ward off the forces of attack, and the first thing to note is (*a*) the prevention of thumb-sucking, etc., and especially of comforters,

inasmuch as these tend to restrict the development of the jaw. (*b*) Children should be encouraged to eat hard food on account of its beneficial effect on the periodontal membrane nd also upon jaw development. We may regard the saliva as protective against the occurrence of caries. Substances which provoke the flow of the saliva, such as acids and pleasant flavours with the food, are beneficial. (*c*) In order to prevent the retention of fermentable carbo-hydrates, starches and sugars should not on any account ever be eaten alone, but in all cases be combined with a substance having a distinctly acid taste, such as the natural organic acids found in fruit and vegetables. He further recommends an acid mouth-wash, which is entirely opposed to our preconceived ideas.

Pickerill sums up his observation on dietary by saying that all meals should contain a fair proportion of salivary excitants, and, more important still, should both commence and end with some article of diet having an acid reaction. He recommends that every meal should conclude with fresh fruit. He strongly condemns tea and the usual carbo-hydrates which accompany it.

Last thing at night he suggests a small portion of such fruits as orange, apple, pear or pineapple, apparently with the sole object of provoking a good flow of saliva.

Children should be encouraged to spend their pocket-money on fruit rather than on sweets, and on biscuits least of all. The final cleaning at night must of course be most carefully observed, and a word of caution is necessary that it should be absolutely the last thing. I have frequently found when questioning parents that they regard milk or biscuits taken in bed (*i.e.* after the cleaning) as not affecting the case.

SOME ASPECTS OF BRITISH SURGERY IN FRANCE.

BY

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IT may be of interest to those at home to know some of the principles of treatment applied to cases of gunshot wounds within the first few days of their occurrence, for the problems which confront the surgeon abroad are very different from those which occur in England. This is largely owing to the fact that practically all wounds are in an acutely septic condition, a condition of urgent and paramount importance, which necessitates the use of free incisions for the relief of tension and adequate drainage of the wounds. Much of the work at the casualty clearing stations and base hospitals consists in energetically combating this sepsis, and without the results thus obtained many of the cases would die of acute toxic poisoning, or would suffer more severely from the extension of the septic mischief during their transference to England.

The treatment of well-marked "gas gangrene" is the same in all the hospitals I visited while Acting-Consulting Surgeon in France, viz. circular amputation without flaps. It is impossible to enter here upon the controversy which has arisen with regard to this form of treatment. It must suffice to say that any form of flap is more than likely to lead to a further development of the bacillus perfringens with extension of gangrene, and I am in agreement with those who consider the flapless amputation for gas gangrene to be a life-saving operation.

The "straight" amputation should be done above the

gas-infected tissues; but this is sometimes impracticable, and I have seen cases recover where the line of amputation necessarily passed through the infected area.

It is of the greatest importance not to confuse gas gangrene with the local varieties (gaseous cellulitis, etc.) of infection with gas-forming bacilli.

The treatment of these local infections differs according to the views of the surgeon. Some operators practically excise the whole wound, so as to expose healthy muscle and skin. Such an operation in a deep wound with widely-lacerated muscles must cause considerable shock. One would also suppose that the exposure of such a large fresh surface to infection might lead to serious toxic absorption, but it is said that this has not been found to result. By others these cases are successfully treated by drainage and free incision only, care being taken that no tension or "pocketing" is allowed to remain. Sometimes a deeply-invaded muscle is removed, but there is no such excision of the whole wound as previously referred to. It seems clear, therefore, that it is unnecessary to submit the patient to the shock of a free excision of wounds accompanied by local infection with gas-forming bacilli. A case in point is the following:—

Private W. was wounded on July 1st, and admitted to hospital on July 4th with a shell wound and extensive spreading sepsis of the upper part of the right thigh reaching on to the abdomen. The general condition was most unsatisfactory, and gave rise to anxiety. A large shell fragment was removed from a stinking abscess cavity full of gas. There was sloughing of the subcutaneous and intermuscular tissues. Very free multiple incisions were made, and the wounds were dressed with salt tablets. Two days later further incisions were made. The condition rapidly improved. On July 17th the wounds were healthily granulating, and on July 19th he was sent to England.

As regards the treatment of septic wounds generally there is a considerable divergence of opinion as to what is

best after the inevitable incisions for the relief of tension. At some hospitals the wounds are lightly packed with gauze wrung out of five per cent. saline solution and covered with wool and bandage, at others eusol is used, sometimes mixed with equal parts of ten per cent. saline solution, in a similar manner. In both cases the wounds are dressed once or twice daily, and irrigated at the time of dressing with the same solution as that used for wetting the gauze.

At other hospitals, again, the treatment of septic wounds consists in packing them with gauze, enclosing tablets of salt, each tablet containing sixteen grains of salt and three grains of citrate of potash. Large numbers of these tablets are used by placing them on two to four layers of gauze about three or four inches wide, and twisting the gauze so as to enclose the tablets. The wound is then covered with dry gauze, wool and bandage, or dressed with eusol or saline solution as referred to above. Pain is caused for about an hour, and the tablets are not wholly dissolved for about forty-eight hours. After being dressed in this way the wound is left by some surgeons for a week or longer according to circumstances.

The advocates of this last method maintain that it is quite unnecessary to dress these cases frequently, and that by leaving them alone you save the patient from much pain and shock. Cases are commonly dressed after an interval of about a week from the primary dressing, as by this time the gauze easily floats off with the pus which has accumulated beneath. If, however, during this period the temperature rises or the pulse is accelerated, and particularly if the wound becomes painful, a further exploration would be made and any " pocketing " or tension relieved.

It is needless to say that decomposition occurs, but the patients appear to prefer to put up with the foul odour of putrefaction rather than to bear the pain of frequent

dressings. The smell can be partly kept under by more frequently changing the outer dressings, without interfering with the part of the dressing next to the wound; for those who prefer this form of treatment regard the frequent removal of the whole dressing as deleterious to both wound and patient. As examples of infrequent dressing of wounds surrounded by stinking pus without appreciable harm resulting the following cases may be cited :—

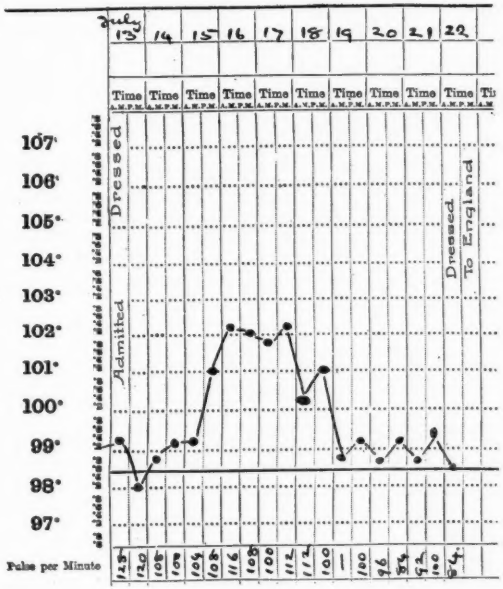

CHART I.

Private M. was wounded on July 8th and admitted to a base hospital on July 13th. The note sent with him from the casualty clearing station stated that he had a compound fracture of both bones of the forearm; that the arm was very tense on admission, and threatened gangrene was relieved by incisions; that the wounds of the shoulder were very dirty,

and that the case required "frequent dressing." On admission to the base hospital the patient looked very ill, there were severe multiple wounds of the left arm and forearm with extensive sloughing, and fracture of both bones of the forearm. The wounds were dressed with gauze and ten per cent. saline, and they were not dressed again until July 22nd (nine days after admission), when the patient was transferred to England. The frequent dressings previously employed had been very painful, and the patient expressed his preference for the form of treatment adopted at the base hospital.

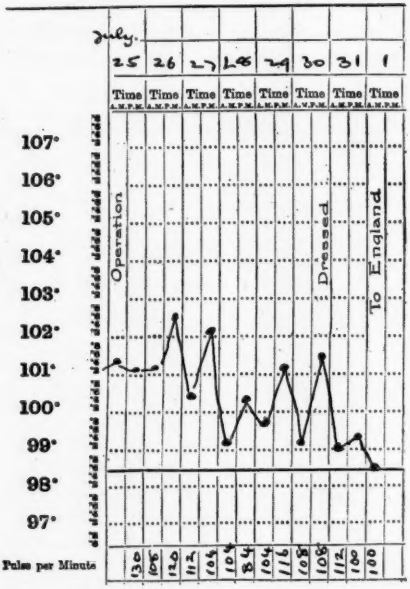

CHART 2.

Private M. was wounded on July 23rd, and admitted to hospital on July 25th with a bullet wound which traversed the shoulder-joint from front to back, and associated with comminuted fracture of the head of the humerus. The wound was packed with salt tablets and gauze, posteriorly, down to the joint, and not dressed again till July 30th. On August 1st he was sent to England.

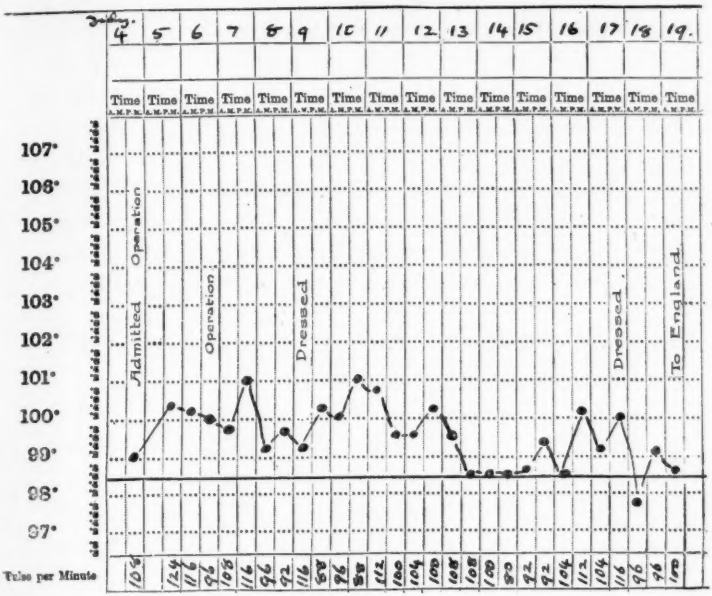

CHART 3.

Private W., wounded on July 1st. This is the case of localised gas infection of the thigh already referred to. The wounds were not dressed between July 9th and July 17th, when they were found to be healthily granulating. Some dermatitis of the back of the thigh had been caused by the irritation of the pus, but this had practically disappeared when he went to England two days later.

To leave wounds bathed in decomposing pus seems abhorrent to those who have been educated in modern aseptic principles during times in which septic wounds rarely occurred, but in military surgery in the present war almost all wounds are septic, and the conditions more nearly resemble those which obtained before the days of Lister.

The salt pack used in these cases where the dressing is

left unchanged for long periods is regarded by its advocates as an essential part of the treatment, and probably this is so, for the salt produces a watery flow through the wound which keeps the surface moist, and as a mild antiseptic tends to inhibit the growth of organisms.

I am of opinion that wounds granulate more quickly when dressed once or twice daily with eusol or other antiseptic than when left for five or six days or more, without dressing, after putting in salt packs. This is probably owing to the deleterious effect of pus on the newly-formed granulation tissue; for, owing to the proteolytic ferments of its causative organisms, pus may irritate the granulation tissue and thus delay the initial process of repair.

It must, however, be conceded that this method of infrequent change of dressings has advantages in the early stages of treatment of some cases. Wounds are often large, deep, and extremely painful owing to the inflammation accompanying acute sepsis. The dressing of these wounds produces considerable shock, and to dress them frequently might easily turn the scale against a bad case. To leave the dressing unchanged for several days may save the lives of such patients, and certainly saves much pain under conditions where time and a plentiful supply of nurses, both of which are essential if frequent dressings are undertaken, may be wanting. For purposes of transport it is particularly useful to know that wounds can be packed with salt, and then left undisturbed for several days without serious consequences. After the first week, when the wound is freely suppurating and the dressings float off easily, there is not the same advantage in leaving the dressing unchanged for a long period.

One might suppose that the advanced decomposition in these wounds would give rise to pyæmia and secondary hemorrhage. That some cases should die of toxæmia is

inevitable in the acute septic conditions which occur in the present war; but pyæmia does not seem to occur, and secondary hemorrhage is apparently no more common than amongst septic wounds treated by more frequent dressing

Though possessing some advantages in the directions I have already indicated, the method is not ideal, and it may be worth bearing in mind that Dr. Carrel has devised a means by which wounds may be more or less continuously irrigated through perforated rubber tubes without disturbing the dressing.

Many operations are performed under spinal anæsthesia or local anæsthesia. For the former stovain is used, and this is occasionally supplemented by a very slight general anæsthesia in nervous patients. Operation under stovain is frequently unattended by any marked degree of shock, and I have amputated in the upper third of the thigh by this method of producing anæsthesia without any appreciable effect on the pulse of the patient. Spinal anæsthesia with stovain is useful in war surgery, for many cases are unfit for deep general anæsthesia. On the other hand, the patient may exhibit grave symptoms, and die of respiratory failure with cyanosis and widely-dilated pupils. I have seen a patient with these urgent symptoms recover immediately on the withdrawal of some cerebro-spinal fluid by lumbar puncture. A preliminary subcutaneous injection of strychnia is frequently used to prevent this tendency to respiratory embarrassment. For local anæsthesia one per cent. of novocain with adrenalin is used, anæsthesia being produced in a few minutes. Most operations upon the head are performed by this method, which is also useful for the common practice of completely excising septic tracks for the purpose of obtaining union by first intention.

Reference must be made to the "electro-vibreur" of

Professor Bergonie. This useful instrument practically consists of an electro-magnet suspended from a frame and charged from the main electric supply. When it is brought near iron (shrapnel casing, ferro-nickel of German rifle bullet, etc.) a rapid vibration of the metal is produced, which can be felt by the hand placed over the part in which the substance is buried. The point of greatest intensity of the vibration marks the locality of the foreign body. If the metal is too deep for the vibrations to be felt by the hand they may be heard with the stethoscope. When work is heavy and there is little time for exact localisation by X-rays this machine is invaluable, and even at operations in ordinary times it supplements the skiagram or allows one to dispense with the screen. The method is valueless if the metal is fixed, and of course only iron is attracted.

MEDICINE AND SURGERY IN MESOPOTAMIA.

BY

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I PUT medicine first, not because of any personal predilections, but because during my short stay in Mesopotamia the surgical cases were "snowed under" by cases of sickness. Not only so, but most surgical cases presented evidence sooner or later of non-surgical disease. It may be well to look first in a general way at the principal causes of this heavy incidence of sickness and disease.

First of all comes the heat. When I reached the 23rd Stationary Hospital at Amara, to which I was attached,

the hot weather was just beginning. To very many of the troops tropical heat was an entirely new experience, living under canvas as the vast majority did. Moreover, there is something peculiarly potent about the heat in Mesopotamia; even those who were accustomed to higher temperatures, in India and elsewhere, found it very trying. The effect of the sun as a factor in causing disease showed itself chiefly in a lowering of resistance to infection. Everyone lost weight, whether sick or not, and this was, I believe, in large measure due to the climate. Of actual heat-stroke I saw none myself, but I heard of a few cases even as early as June. In 1915 I am told there was a good deal. Patients in thin hospital tents suffered much from the heat.

Another potent cause of disease was the water supply. All water was drawn from the Tigris. The habits of the Arabs, and their apparent freedom from water-borne disease, furnished a striking illustration of acquired immunity. Within a comparatively short stretch of river-bank you saw people washing clothes, defecating, bathing, and drinking the river water "neat." Add to this picture an occasional corpse, and the pathogenic properties of Tigris water are not hard to imagine. Apart from the bacterial content of the water, however, it seems that the sand in suspension and certain salts in solution acted as intestinal irritants. Scarcely anyone escaped a sharp attack of diarrhœa as an early experience of Mesopotamia's hospitality. Added to these natural properties were all sorts and conditions of intestinal bacteria, from the cholera vibrio downwards. Against these various insults to the alimentary canal the Arab has been immunised from his infancy up by a very simple method—that of drinking the water in increasing doses. The dosage being regulated by the size of the hand that scooped the water up out of the river, it follows that the Arab is educated, by doses

increasing in a true proportion with his increasing body weight, to swallow filth. Probably this means a high infant mortality, but at least the survivors are adequately immunised.

In most places the water was collected into tanks, sedimented by gravity, and sometimes also by the addition of alum, and the fluid thus cleared was further disinfected with bleaching powder. Some of us boiled a private supply for ourselves, but it was impossible to practise this on the large scale. There were no receptacles for doing so, and fuel was scarce.

A third factor in the production of disease was a plentiful supply of biting insects. The chief of these were the mosquito, the sand-fly, and a peculiarly annoying fly like the English house-fly, which bit, and painfully, through thick socks, trench stockings, and so on. I did not see many lice, but in the trenches they were plentiful, I am told. Not only did these insects spread disease by their bites, but also by their passage from fæces to food. It was quite impossible to keep one's food free from them, and they must have been a potent factor in the spread of the intestinal infections.

Another thing which certainly predisposed to disease, as well as causing it directly in a few instances, was the lack of food. I heard of beri-beri in real outbreaks, but I saw only one or two cases that might have been so diagnosed. Scurvy also occurred, though not within my own observation. But the way in which the food shortage did operate was in lowering resistance to infection, and especially to the intestinal infections. The Red Cross Society did good work in bringing us supplies of various invalid foods, but without these it was hard to treat patients suffering from various types and degrees of diarrhœa. The bread was rather sour, and there was practically no fresh milk. Chicken

were to be had; though small, they made good eating. Also there were fish in the river, but of a muddy and not alluring flavour.

Finally, I am sure a place in the production of and predisposition to disease must be given to the depressing mental outlook. The country is a vast, colourless plain, almost devoid of trees, shimmering in the heat. The campaign was not prosperous, and we were cut off from the comforts of home and civilisation. The result was a depression from which there was nothing external to distract the mind. Among the Indian troops home-sickness was so potent that all kinds of devices, some of them most desperate, were resorted to in order to compass an escape from the country. The British soldier, I am convinced, felt it even more severely, but, as is his wont, said nothing about it.

Put all these factors together, and it is not surprising that there was much disease. Indeed, it is marvellous that anyone got through, especially among the unseasoned troops. The next point to note is the chief features of the diseases met with.

First, there were the various degrees of diarrhœa. Much of this, I think, was to be ascribed to the water supply. Almost everyone on first arriving in the country showed more or less evidence of intestinal irritation. This varied from a mild relaxation of the stools to an intense, almost choleraic diarrhœa, but it was usually a febrile. The worst feature of it was the weariness and susceptibility to infection which followed. Next above these "Tigris" diarrhœas came the cases of febrile enteritis and colitis. In cases of this type the fever lasted for two days up to ten days. It seldom ran high. The diarrhœa showed an annoying tendency to persistence with relapse. Specific types of diarrhœa, such as amœbic dysentery, were apparently rare.

On the other hand, it was difficult to draw a line of demarcation between cases of this type and cases of the enteric group of infections. Of this more presently. Worst of all were the cases of cholera. Some doubt rested as to the true specificity of these cases. Most of them were said to be milder than ordinary Asiatic cholera. Three cases that I saw—about the first of their kind to turn up at Amara—all proved fatal, one in a few hours, the others after several days, and in spite of determined efforts with hypertonic saline. Even in the severest of these, however, the stools failed to yield the characteristic vibrio. There was some suspicion that these might have been some form of ptomaine poisoning, but so far as we could trace it the evidence was against this theory. In the final stage of these cases I was struck by the air-hunger type of respiration similar to that seen in acidosis.

Second, there was a remarkable medley of cases of pyrexia. From the general muddle several types stood out more or less distinctly. There was a short fever which we called "Mesopotamia fever." I think it was identical with the short fevers of other tropical countries. It seemed to be due to the heat, possibly acting as a factor predisposing the body to infection by feeble organisms which would otherwise make little or no impression on it. It affected those who had newly come to the country. The onset was abrupt, with a sharp rise of temperature, severe headache, bounding, rapid pulse, face flushed, expression weary, eyes injected and tongue furred. The whole thing passed off in forty-eight hours or so. Second, there were the enteric fevers, probably including paratyphoid. In the absence of proper laboratory arrangements not much could be done towards investigation of these. Yet there is little doubt in my mind that some of the febrile diarrhœa to which I have alluded above represented "modified" types of

enteric infection. We may suppose either that there is a much larger number of pathogenic strains belonging to the typhosus-paratyphosus group of organisms, or that inoculation, particularly with the mixed vaccines, has produced modified types of the reaction to infection. The signs which appeared to be of most service in distinguishing between the enteric cases and those which resembled them were the tumid abdomen with loss of abdominal reflexes, the rose spots, the dicrotic pulse slow in proportion to the degree of fever, and enlargement of the spleen when it was present. We had one case of perforation, in which my colleague, Lieut. T. M. Body, R.A.M.C., discovered and closed the perforation with what would have been signal success under happier circumstances. But the man was too exhausted by the climate and the long trip down river, and he failed to get through. Then there were the malarial fevers. These were not so numerous as I had expected, but we had a few cases of benign tertian infection, and quite a definite group of cases which, judging from their favourable reaction to vigorous quinine treatment, were examples of irregular malarial infection. In these the fever was continued with a tendency to periodic exacerbations at intervals of two or three days. Somewhat similar to these were cases, of which my own was an example, of fever returning in short paroxysms at intervals of five or six days, and characterised by pains in the legs, loss of weight, and anæmia. This seems to me to be identical with the severer types of "trench fever" described in Flanders, in the Russian armies in Volhynia, and elsewhere. But apart from these more or less definite types of fevers there were all sorts and kinds of continued pyrexia to which it was impossible to affix any label. These offered a rich opening for research, tantalising because the means of achieving it were not within reach. One thing may be

remarked as to the general nature of the fever, and that is that in all types the febrile reaction seemed to be exaggerated out of proportion to the provoking cause.

Very much might be written about the evidences of general exhaustion. These are, of course, seen in every army. They constitute a most interesting subject, but here it would be out of place to do more than indicate the features peculiar to Mesopotamia. Loss of flesh was common to everyone. Those who had diarrhœa or some infection lost weight faster than they would have done in a more familiar climate, while those whose health was comparatively good nearly all got thinner. The most intense cases of pure exhaustion that I have ever seen were among men who had been engaged in the fruitless attempt to relieve Kut. One case in particular struck my imagination. The patient was a young artilleryman of powerful physique, a collier in civil life. Ordinarily he would strike one as a thick-skinned son of toil, unimpressionable in the least degree. Yet he lay curled up in bed like a meningitis case, with the bed-clothes drawn over his head, weeping quietly. His legs were very hyperæsthetic, but there was no organic lesion. He became extremely constipated, and his abdomen blew up hard to such an extent that one of my colleagues, who saw him when I was ill, thought he would need laparotomy. However, an enema succeeded, and from his subsequent course it became clear that the whole thing was functional, and due in some obscure way to the wear and tear to which he had been subjected. Nightmare was common. Many of the men wore an extremely anxious look. This was noticeable even among the slighter cases of sickness. Pains in the legs were common, and seemed to me to be caused in some way by exposure and fatigue. The "soldier's heart" was as frequently encountered as among any of the armies, with the possible exception of the men from Gallipoli.

One very striking feature, observable in all the various types of diarrhœa and also of fever, was the impossibility of convalescence. No one ever picked up strength as well as might have been expected. Particularly was this noticeable in men of forty or over. The wastage due to sickness was greatly aggravated by it. As one of my friends put it: "If you get your head below water in this country you don't get it up again."

Of surgical work I can say but little. When we arrived the heavy casualty lists that marked the attempts to relieve Townshend's army in Kut were dwindling. The one striking feature of the cases I saw was the absence of serious wound infection. That this was due to the nature of the soil seems probable, for there was quite a strong tendency to sepsis in small lesions such as insect bites on the legs. No case of tetanus came under my own notice. Recovery from serious wounds must have been grievously handicapped by the difficulty of getting the men out of the fighting line and back to the hospitals.

One must recognise the immense difficulties of organising a medical service on the large scale that was necessary. It is over 6,000 miles from England to Basra even by the most direct route, and Basra is 1,600 miles from Bombay, the nearest available centre of civilisation. Amara was about 150 miles above Basra, and the front was 100 miles farther on. The only means of transport was by the Tigris, a very difficult river to navigate; there was no railway, and no road available for motor transport.

It would be unfair to conclude this paper without saying a word as to the splendid work of the R.A.M.C. Never did the motto of the Corps, "*In arduis fidelis*," find a more signal fulfilment. When we arrived the personnel was far below the minimum of what was necessary. During my short stay many fresh officers arrived, and this redressed

the disproportion; but those who had borne the heat and burden of the earlier part of the campaign, particularly of the period following Ctesiphon, and including the attempts to relieve Kut, had accomplished wonders of endurance and perseverance. This applies to the I.M.S. as well as to the home Corps.

Various Bristol men were at work in Mesopotamia. At Amara practically all the bacteriology was in the hands of Major F. P. Mackie, I.M.S., who accomplished the apparently impossible by working through the heat of the afternoon day after day. Captain Green-Armytage, I.M.S., was also there, attached to the Commander-in-Chief's Staff, but I did not happen to see him. Captain A. N. Thomas, also of the I.M.S., was invalided before I got out. Many whom I met counted themselves among the friends of Frank Shingleton Smith, who fell at Ctesiphon. The work of Physician to No. 32 General Hospital was being carried on by Lieut. F. G. Thomson, R.A.M.C., of Bath, when I last heard. Outside the medical services there were many West Country units serving in Mesopotamia, and it was pleasant to hear the familiar speech of Wessex in the hospital tents of Amara.

TEN MONTHS IN FRANCE WITH A FIELD-SERVICE X-RAY OUTFIT.

BY

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HAVING spent more than eight months of the war in Bristol waiting for work with the sick and wounded, I finally got the permission of my local Commanding Officer, and applied direct

to the War Office, offering to go in charge of any X-ray department in any military hospital at home or abroad, and to make myself generally useful. In less than a week I received a telegram ordering me to mobilise next day at a rest camp with a general hospital then forming. I had relied on some practical knowledge of X-ray photography in the very early days of the art, and also on the concoction, from time to time, of over twenty-five papers on the interpretation of X-ray pictures. I found in the sequel that my somewhat theoretical investigations were most of them highly intelligent anticipations of the best every-day practice of the present time, though others of them still await practical realisation, more especially in the application of proportional representation to X-ray medical diagnosis.

My arrangements had long been made for any sudden summons, and I promptly reached the rendezvous, where I had an interview with my new Commanding Officer, who gave me a wigging for being in mufti, an identity disc "to secure a Christian burial," and two days' leave back to Bristol to obtain my uniform and kit.

On my return I was billeted at a comfortable hotel in the town, and spent my time in making acquaintance with my new comrades, in airing my new clothes, in drilling (and grilling) on the gorse-surrounded glades of the common, in picking up the routine of duty, in receiving lectures from one of our regular majors on the science and art of filling up diet sheets, and in strolling about the charming environs of a very pretty seaside town. Also I had myself to lecture on the sward to different squads of our rank and file. Luckily I had with me a few lantern slides and carbon reductions of X-ray photographs, which rendered my prelections, I hope, more objectively interesting. From individual listeners I had many useful suggestions and reminiscences. Blessed by delightful weather and with all our beautiful surroundings

our last days in England passed pleasantly and swiftly by.

Life in the army is in the present war much of a lottery, by the trick of a number we might have gone farther and fared worse. As it was, our turn came to march in at the dock gates and to embark on the waiting transport. The next morning, after an uneventful passage, we found ourselves anchored off a foreign seaport, and a little later tied up to a quayside that must have been familiar to many of us. The first night we spent on ship-board with the cargo cranes banging all night, and the second at a rest-camp on a hill, where I had my first experience of sleeping under canvas, and very cold at that. On our way to entrain thence we passed below some ramparts, where the visitor is shown the bench on which Pendennis the younger found his dear old colonel sitting, when he went to succour him in his foreign refuge. Finally, a short and slow railway journey landed us all at our destination, a roadside station between sandy dunes and verdant chalky downs, upon a partially cultivated green veldt at the side of the railway line. A few bell tents without floors, one or two marquees, and a skeleton hut here and there were all there was then to mark the site of what in a few weeks was a canvas town of hospital tents and offices to hold thousands of patients, hundreds of attendants, and scores of physicians and surgeons.

Arriving on the ground on May 16th, 1915, our hospital, including the X-ray department, was ready for its full complement of patients by June 4th. Our first X-ray home was a field operation marquee, with a very limited and uneven floor-space, much encroached on by its slanting sides, with just room, in fact, for an X-ray table and our coil and accumulators on a wheeled trolly. We had changed our brand-new uncharged accumulators for an ancient charged set at the Base Medical Stores, and took our first X-ray

photograph on June 5th. In about a week we removed to the X-ray compartment of the general operating hut next to the theatre, practically an open-air shed, until we removed to our present really commodious and comfortable X-ray hut attached to the officers' surgical ward. In spite of many technical and climatic difficulties (exposed as we were to heat, cold, damp, rain, dust, glare, and absence of artificial light and warmth, till some seven months had elapsed), I am glad to say we never had to refuse any case brought to us for any but an hour or two's temporary breakdown.

The work in the ten months under review was done entirely by accumulators. In that time we photographed 1,607 patients on 2,849 plates, taking 1,954 different parts, all cases of British soldiers, with the exception of a few nurses and 14 French local patients.

On 47 of our 304 working days we had no cases to take ; these days were spent in experimenting on our connections and tubes, overhauling our apparatus generally, and in taking down and moving and re-erecting our apparatus as occasion required. On one of these off days we X-rayed stereoscopically a skull lent by the dentists, with a perfect set of teeth, antero-posteriorly from the sides and from the base, and found these photos when viewed singly most excellent key-charts in determining the landmarks of the clinically X-rayed skull. I cannot help thinking how valuable these X-ray surveys of the dried human skeleton would be generally, especially of such joints as the shoulder and hip, from different points of view. The average daily number of plates taken was over 9 ; one day we took 75, often 40 and 30, and very often 20. So far as the statistics of our unit are available, we examined by X-rays two-fifths of the surgical cases admitted.

Probably the accompanying tables will give in brief the best idea of the amount of work, and some idea of its nature,

requiring to be done at a base hospital at the back of the front on the lines of communication in Northern France. The vast majority of cases admitted were recent gun-shot wounds, many infected at the time of injury. Most of the fractures were compound and comminuted. It is evident from the present tables that many patients had more than one injury, affecting more than one part, *e.g.* one had to be photographed on six different plates, over seven different parts. Having a special dental department, we had many cases of injury to jaws and face. Many cases were X-rayed at intervals to test progress and results :—

TABLES.

Patients Examined.

British	1,593
Local French	14
Total	1,607

Plates Taken.

(*a*) Not sufficiently clear to give certain assurance of presence or absence of a lesion ; that is, poor plates from insufficient penetration	103
(*b*) Sufficiently clear to negative presence of an X-rayable lesion	826
(*c*) Giving positive evidence of presence of one or more definite lesions ..	1,920
Total	2,849

(including single " view finders, 997 ; 76 stereoscopic pairs ; 370 pairs of plates of the same part taken at planes at right

angles to each other, and 31 exact mathematical localisations by double exposure on one plate).

PARTS TAKEN (Class (*c*) only).

Hands and Wrists ..	145	Thighs	107
Forearms	113	Hips, ilium and ischium	50
Elbows	82	Neck	27
Upper Arms	74	Chest and Back ..	68
Shoulder, Clavicle and Scapula	140	Loins and Abdomen	18
Feet and Ankle.. ..	88	Pelvis	22
Legs	84	Cranium and Orbit ..	110
Knees	79	Face and Jaws.. ..	93

LESIONS FOUND (Class (*c*) only).

Fractures	354
Shrapnel fragments	636
Both fractures and shrapnel fragments ..	86
Service bullets	44
Shrapnel balls	26
Miscellaneous (including a few medical cases)	154

We used all sizes of plates from $4\frac{3}{4}$ by $6\frac{1}{2}$ inches up to 12 by 15 inches; of the last in special cases we used no less than 87. They were, however, very difficult to handle and develop and wash, and except in very large patients had no advantage over our favourite size, 10 by 12 inches, which last was of great use when systematic screening was out of the question. Of every 100 plates used, 40 per cent. were either 10 by 12 inches or 8 by 10 inches. Another very useful size was 6 by 8 inches, especially with lateral views of the jaws, and in locating by double exposure on one plate, and with the hands.

The miscellaneous cases were not the least interesting of the lot, and merited more than one special monograph. At

least 50 plates showed the peculiar mottling caused by the presence on the soft parts of pockets and strata containing gas and fluid infection. One skull in a case of acromegaly showed distinct enlargement of the sella turcica. Another skull showed a trephine wound. One plate showed a beautiful osteoma of the shoulder-blade. We had a case of simultaneous comminuted fracture of both fibulae, several complete dislocations of the shoulder and elbow, osteophytes about the knee-joint, a supracondyloid process of the humerus, a post-mortem specimen of a service bullet in the body of one of the upper cervical vertebræ. In one mastoid area X-rayed the shadow of a service bullet above and in front of the ear was not detected from the plate, the butt and side lines of a safety-pin obscuring the outlines of the bullet, the missile being independently found on cleaning up the wound by incision. In the stereoscopic picture of one injured shoulder the service bullet was found over the medullary canal of the humerus with the point downwards ; its position could not be determined till the stereoscopic plates were superposed, nor the surgeon satisfied till we had taken other two plates on planes at right angles to each other of the lower end of the humerus. Several patients were taken under anæsthetics, prior to ordinary operation, with various probes or forceps in the wounds to facilitate localisation. We had no undoubted case of calculus in ureter or bladder. In cases of extensive surface peppering of the soft parts with shrapnel the patients seemed to show great tolerance. I need hardly say that in the case of large surgical convoys we did a good deal of first-hand diagnosis for our surgical friends.

Our dark room work was always a bright spot ; if anything was on the plate at all, our sergeant always brought it out. As a rule, with our accumulators we got plenty of detail, but thin and unprintable negatives. It must have been no easy task to develop 40 or 50 plates on a hot summer

day with water that had to be carried a quarter of a mile often. Our general duty orderly was of use through his previous knowledge of wiring and electrical connections.

Our field service outfit was of " pattern 1915," by a well-known maker. We had six lithanode accumulator batteries of three cells each. A small three-quarter horse-power engine, coupled by a chain to a small dynamo, was supplied to charge and re-charge our batteries ; it was a perpetual nuisance. Too strenuous for its frame, it used to throw itself to pieces, and could be got to work only for an hour or two at a time. What happened finally I could never find out. It was rather noisy, and one fine morning I found it in its place of exile at the end of the lines motionless and alone, with a broken bed-plate and a snapped chain, in company with a smashed voltmeter and a coal hammer with a broken handle. These accumulators were exchanged for a freshly-charged set every week (latterly every fortnight) from the B. M. S. ; and in the interval for every hour's discharge they got an equivalent bucking up at the camp electric lighting station, and latterly in our own hut, through a lamp resistance board. We had a wheeled trolly, for bedside work, fitted to take the accumulators underneath and the coil above. A rather better plan would have been to reverse this arrangement ; as it was, the accumulators were difficult to examine and to uncover to get at a loose binding screw or the like. The use of this trolly in our hospital of irregularly distributed marquees was quite impracticable, and we used it only twice at the bedside. The coil was a 12-inch spark one and very good. We had a very good, efficient and simple control unit.

The mercury interrupter was very good, but much too complicated for accumulators, and gave much trouble and anxiety till we learnt by experience its structure and ways ; with experience we got it latterly always to work very

sweetly. The dialectric was condensed coal gas in cylinders ; as an alternative in case of failure of supply we were instructed to use sulphuric ether, but never needed to. In some of the other hospitals hydrogen gas was made and used with success. Our table was much too elaborate, but well designed, and quite up to date. I often thought of removing the top entirely and getting the stretchers put on the frames direct.

Attached to the rolling car of the tube box was a massive upright to hold over the patient a very heavy and cumbrous overdeck, which after trial we found much too heavy for convenient habitual use. We had a very well-designed overhead tube box holder. We had an elaborately-fitted large stereoscope in book form, like a family Bible, but personally I preferred converging the vision from the front of the negatives, illuminated by daylight, against two finely-ground glass window-sashes of large size. We were plentifully supplied with all the usual accessories, namely a fluorescent screen in a bellows folding holder, changing box, intensifying screen (which we never successfully worked), iris diaphragms, short extension tubes, valve tubes, rubber gloves, and a good photographic outfit of plates and chemicals, renewed on request from the B. M. S. The four English X-ray tubes we brought with us fluoresced misty magenta, and we could get nothing out of them, and so we got rid of them by exchange, and did all our work with American tubes, which answered well. One tube I got in this way from an X-ray friend in need (and in deed) at a neighbouring hospital ; it has taken over 1,500 photographs, and works as well as ever, both with accumulators and with an electric light current. Judging from my experiences here with the rest of our outfit, I would be prepared to go anywhere and do anything in the radiographic way with 12 accumulator batteries, and a reliable petrol engine and dynamo that I knew how to work.

No systematic fluorescent screen work and no printing was possible under the conditions that prevailed during the ten months under review, though of course both were occasionally tried in special cases. Eminent surgeons, for one thing, are not prepared to accept the *ipse dixit* of a G. P., and the photographs were permanent records of the evidence available in each instance. It took in the forenoon at least fifteen minutes to sensitise one's retinæ to the fluorescent shadow, and we were liable to interruption any moment to admit patients, the sunlight being as a rule intensely brilliant. The plates used were Ilford X-ray plates, developed with metol and hydroquinone. We found hypono useful till we got a decently plentiful water supply. Most of our early plates were very imperfectly cleaned from hypo, and are now of no value except for domestic purposes. We had a good deal of breakages and many minor accidents. Our plates varied in quality from very thin poor things to many of highest degree of technical excellence, and our average technique has improved from month to month. As the outstanding feature of our work, I regard the habitual and systematic use of a plumb-line to visualise the vertical ray through the radiographic centre of emission. Out of a broom handle and some derelict pieces of wood the orderly improvised a very serviceable apparatus known as the "Heath-Robinson." In whatever way the tube was moved below the table, along or across, the plumb-line moved always in line with the centre of the target—once accurately centred on the screen in the usual way, the upper attachment of the plumb-line was secured by a rubber band. The cord of the plumb-line was made of elastic, so that the sharp, pointed plumb-bob could be brought down on the plates (to make a pinhole in it) or on to the patient for marking him. The occasional occurrence of mysterious marks on our plates remains still unelucidated in some instances. Some of them

were probably not X-ray markings, but electrographs. Till January last our work suffered badly from climatic exposure, the wretchedly-fitting glazed sashes of our French carpentered doors and windows having been painted jet black to exclude light. Enough light got in to prevent seeing the image on the screen, but not enough to see to work by. Consequently we had to work *sub Jove* (generally *frigido*) with the sashes open, with ourselves and apparatus exposed to rain, wind, damp, dust and cold, nor was there any efficient means of heating or artificially lighting for many months.

The great difficulty was the risk of *movement* on the part of the patient during the prolonged exposure needed in the use of power supplied from only six accumulators. At least two accumulators were needed to work the interrupter unit; and though the tubes lighted up well at two-fifths of a milliamp, it was difficult to get the wounded patient, *e.g.* in the case of a skull or head, to keep absolutely motionless for the two or three minutes required, nor were we ever free from the risk of the responsive vibration of a shaky floor to the martial tread of an impatient surgeon.

The *quæstio vexata* of X-ray localisation of metallic foreign bodies within the living patient, and the relative advantages of this, that or the other method, must remain an open one till the surgeons have balanced their accounts after the cessation of hostilities. One thing is certain, namely that no one method is universally applicable. There are, in fact, two distinct problems or sets of problems to be resolved. In the first we have a case of recent injury when the parts are bruised, swollen, lacerated, infected, inflamed, and the general condition of the patient pretty bad, and interference is mainly required for conditions in which the presence of the foreign body plays an incidental and comparatively unimportant part. In the second set the parts (it may be after some considerable time) have settled down and become

aseptic, the inflammation has subsided, union and cicatrisation have taken place or begun, and the presence of the foreign body remains the chief point of consideration, either in itself or in its interference with function. It will be seen from a note in my table of " plates taken " that the method of exact mathematical localisation was exceptional, nor was I greatly impressed with its relative success as a method. Of the other two methods, the successive exposure of the part on planes at right angles to each other appeared to be the favourite of the responsible surgeons. The stereoscopic method (with its advantage of being able to superpose the two plates taken and then estimate the relative parallaxes of the foreign bodies and of the identifiable anatomical points) was my own favourite. Unfortunately, only two or three of our surgeons appeared to have the faculty of stereoscopic vision under the conditions of pictorial representation, and to the others it was very difficult to translate my own visual judgments into intelligible anatomical language. Many parts, such as the shoulder, that cannot be taken laterally, lend themselves admirably to stereoscopic methods. In localising mathematically by double exposure on one plate, it was only by chance that the position of the patient was at all the same on the X-ray and on the operating table. In taking a stereoscopic picture I found it of great use to put a distinctively shaped tie-pin on the part between the patient and the tube ; when the pin appeared nearer than the part, one knew at once that one's plates were correctly pared. In localising mathematically by double exposure on one plate, it is of great advantage to use a very small plate, as such can be got quite close to the part, and an angle and part of the adjacent sides can easily be marked on the patient, and not to shift the tube too far. Unfortunately few surgeons would allow the plate to be replaced in contact with the patient on the

operation table, nor allow one in every case to put metal rings on the patient's wounds before radiographing, and in fact it was in many cases inadvisable or impossible.

Nor must it be forgotten that in many cases an experienced surgeon will locate his projectile from a single picture 75 times out of a 100, when he has a recent wound track to guide his finger, especially if the foreign body is of any tactile size, and in many cases he is quite content with one picture only.

Without doubt the Röntgen ray is a true *lux in tenebris*. Against the sombre background of the unmerited sufferings of so many of our best and bravest, the present developments of X-ray work (as compared with the infancy of the art) constitute a veritable romance of surgery; one cannot now easily imagine what the surgeons could do without the help afforded them. This is indeed a time of tragic romance; personally two years ago I never dreamed of using upon French soil German rays in the diagnostic aid of British Tommies.

One of the greatest privileges we enjoy out here has been the visiting of similar and superior X-ray installations; every general and many smaller hospitals have their own outfit. There is certainly nothing in Bristol to equal some of these installations. One hears there of much the same and of other difficulties as we had—photographic, electrical and diagnostic—and it was very interesting to learn how different men got over the same difficulties by different devices.

This is not the place nor the time to dilate on the humours of an hospital medical mess on active service. I can only liken it in its candour and cordiality and mutual consideration, when on often harassing duty, with one's old resident hospital days. With heads now grey and bald, and with faces lined and wrinkled, we older members live over again our life of "Auld Lang Syne."

NOTES ON THE OPERATION FOR DRAINAGE OF THE SPHENOIDAL SINUS.

BY

P. WATSON-WILLIAMS,

Major, R.A.M.C. (T.), Hon. Consultant for Diseases of the Ear, Nose and Throat to the Military Hospitals of the Southern Command;

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IN our previous issue the method of diagnosing the existence of infective sphenoidal sinusitis by means of the exploratory suction syringe was described, affording as it does the only criterion of the presence of the affection short of actual inspection of the discharge escaping from the sphenoidal sinus ostium, a very rare event compared with the relative frequency of the disease. Further, the possibility of clinching the diagnosis by a method which involves no removal of any normal structures is a great advantage over the more usual preliminary anterior middle turbinectomy; on this I laid stress in my foregoing communication. But, even when it is found necessary to expose the sphenoidal sinus by a free removal of the anterior wall, the normal middle turbinate body may be left untouched if one foregoes the doubtful advantage of operating under inspection, relying on the sense of touch and direction alone. Considering how imperfect inspection of the operative field must always be, however thoroughly and patiently the bleeding may be staunched or inhibited, after the partial removal of the middle turbinate, the sense of touch is in my experience a far more accurate and delicate guide.

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IN our previous issue the method of diagnosing the existence of infective sphenoidal sinusitis by means of the exploratory suction syringe was described, affording as it does the only criterion of the presence of the affection short of actual inspection of the discharge escaping from the sphenoidal sinus ostium, a very rare event compared with the relative frequency of the disease. Further, the possibility of clinching the diagnosis by a method which involves no removal of any normal structures is a great advantage over the more usual preliminary anterior middle turbinectomy; on this I laid stress in my foregoing communication. But, even when it is found necessary to expose the sphenoidal sinus by a free removal of the anterior wall, the normal middle turbinate body may be left untouched if one foregoes the doubtful advantage of operating under inspection, relying on the sense of touch and direction alone. Considering how imperfect inspection of the operative field must always be, however thoroughly and patiently the bleeding may be staunched or inhibited, after the partial removal of the middle turbinate, the sense of touch is in my experience a far more accurate and delicate guide.

By the method described below, I have opened several hundred sphenoidal cavities without any serious drawback, after practising it for over twenty-five years, to the exclusion of any other method, and although from time to time the instruments have been modified and I believe improved, my method of operating is substantially unaltered.

Anæsthesia.—While it is quite possible to operate under local anæsthesia, my preference is decidedly in favour of a general anæsthetic, ether followed by ether and chloroform. I always operate with the patient supine, lying flat on the back, but if preferred it is not difficult to operate in the sitting posture.

Preparation required consists in spraying or lavage of the nasal passages with some simple warm saline solution, followed by spraying with a solution of weak adrenal solution with cocaine, eucaine or novocain hydrochlorate, which serves the double purpose of shrinking the turbinals, reducing bleeding and the cardio-inhibitory reflex influence of the fifth nerve. Thus the preparation for operation is the same as for exploratory puncture.

The instruments I use are (1) an ordinary nasal speculum, (2) the blunt straight exploring cannula, (3) a small and a large size spheno-ethmoidal punch forceps. Both the cannula and forceps are marked in inches or half-inches from the tip backwards, so that one can always tell how far the ends are from the patient's nasal aperture or other landmark of the nose.

Operation.—If no exploration has been made beforehand for the diagnostic purposes it becomes the first step in the operation, firstly for establishing evidence of sphenoidal sinus disease, and secondly in order to measure the distance from some convenient landmark, such as the top of the patient's nose, to the anterior and to the posterior sphenoidal sinus wall, in a straight line passing between the nasal

septum and the vertical plate of the middle turbinal as the cannula goes through the thin anterior sphenoidal sinus wall. Thus we may find that the anterior wall of the sinus is three inches from the nose tip and the posterior wall is four inches,

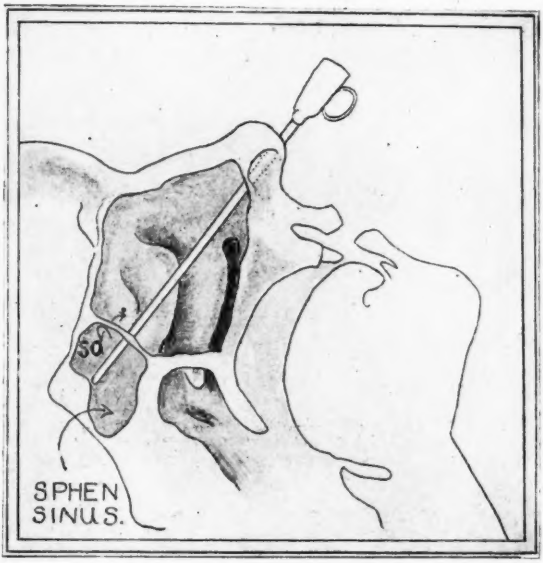

FIG. 1.

Showing Watson-Williams's sphenoidal sinus cannula passed through the thin anterior wall of the sinus so as to lie well within the sinus cavity, the "patient" lying on the back. The arrow shows the position at the normal sinus ostium, S.O.

from which it follows that the sinus is at least one inch deep, less the thickness of the thin anterior wall. These distance measurements are invaluable data, as one knows exactly the distance of the anterior wall from, say, the nose tip and the depth of the sinus, so that one has only to pass the closed small forceps along the same line for a known distance, through the opening made by the cannula, and one knows for

a certainty that the instrument is free inside the sinus. I then open the forceps and draw them forward till the opened blades are arrested by the posterior surface of the anterior wall, the male forceps blade being at right angles to the stem when opened, and therefore is larger, so to speak, than when closed. Then, closing the blades, one draws the instrument out about one-eighth of an inch or so, and on opening them again it

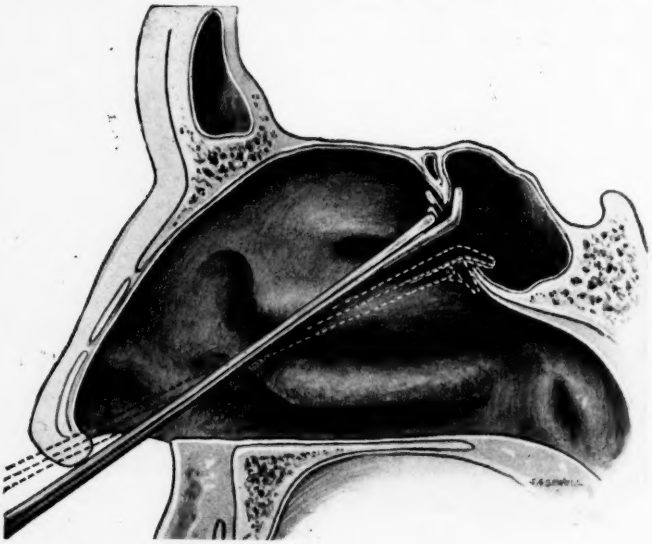

FIG. 2.

Drawing to show the author's spheno-ethmoidal forceps cutting upwards and downwards in the removal of the anterior sphenoidal sinus wall.

is found that the male blade is in front of the wall while the female blade is inside against the posterior wall, and thus when closure is made a piece of the wall is punched out. Keeping the forceps at the same distance in the sinus from the nose tip, the anterior sinus wall is quickly clipped away, upwards, outwards, inwards and downwards by rotating the

forceps as one clips the wall away. In a straightforward case this can be done very rapidly, one minute sufficing to remove the whole face of the sinus. Although the description may suggest a tedious process, I may say that when timed I have made a right and left maxillary antrum exploration, an exploration of both sphenoidal sinuses, and the complete removal of the anterior wall in both sphenoidal sinuses, and at the same time opened the posterior ethmoidal cells, quite deliberately, and the whole procedure took under five minutes. Expedition was called for in this case, as the patient had a patch of quiescent broncho-pneumonia, due to bronchiectasis. Further information of value to the operator is obtainable by measuring the capacity of the sphenoidal sinuses. This may be done while the cannula is in the sinus in contact with the posterior wall in its deepest part as the patient lies supine, by throwing in normal saline solution with the syringe till the sinus is full, and then sucking the fluid contents into the graduated syringe.

It will be observed that owing to the oblique plane of the sphenoidal sinus anterior wall the obliquity of the cutting forceps when in position is equally suited for cutting upwards, and when reversed for cutting downwards, as well as in the inward and outward direction, provided the patient is on his back. If, however, the patient is in the sitting posture the special down-cutting forceps are more convenient for cutting downwards.

In cutting upwards one takes care to avoid pressure by the female blade against the roof of the sinus, although the rounded upper border of the female blade runs no risk of penetration without considerable force, and again in cutting outwards one should be cautious for fear of wounding the cavernous sinus, particularly when the sinus wall may be softened. But there is less fear in cutting freely inwards and downwards.

In the outward direction the sinus wall corresponds with the posterior wall of the posterior ethmoidal cells in most cases, and this portion should be removed by the larger size forceps, so as to get a very free opening of the sphenoidal sinus. Downwards the thicker part of the anterior wall may require the larger-sized and stronger forceps, but here care is required to obviate an injury to the internal branch of the nasal branch of the spheno-maxillary artery.

I always use the small-sized spheno-ethmoidal forceps in the first part of the procedure, and often complete the operation without using any large size. But after two or three clips with the small forceps, the orifice is large enough to take any of the larger sizes, and when one has finished the removal of the anterior wall, it is usual for the opening to be wide enough for any large-sized polypus forceps, *e.g.* Luc's largest size, to pass in in any diameter. One thus obtains very free opening of the sinus, without having to remove any portion of the middle turbinate. If the posterior ethmoidal cells have to be opened up, this is done by turning the back of the cutting forceps outwards and cutting just in front of the level of the anterior sphenoidal sinus wall, and working forwards as far as may be necessary, cutting open the inner cell walls in a similar fashion, but without removal of the anterior end of the middle turbinate. Of course, if there are special conditions rendering the removal or partial removal of the middle turbinal desirable, there is nothing to prevent one's doing so, but I never remove it *in order to* get access to the sphenoidal sinuses. Once a patient suffers from nasal accessory sinus disease requiring operative treatment, one never can foretell how much further removal or opening of sinuses may be eventually necessary ; it may be in years to come, and the preservation of the extensive surface of mucous membrane covering the inner and outer aspect of a middle turbinal may, if it be fairly healthy, prove of the

greatest service in maintaining the essential physiological functions of the nose when perhaps the greater part of the ethmoidal labyrinth and all the other sinuses have had to be opened and drained. I do not wish to make a fetish of the middle turbinal, or to suggest that its partial removal is

FIG. 3.

Specimen showing a polypus growing from the sphenoidal sinus and hanging down in contact with the posterior end of the middle turbinal body. The specimen gives a view of the outer wall of the left nasal passage, the nose to the right, the body of the sphenoid to the left.

always to be avoided, or that such removal must necessarily lead to discomfort. On the contrary, I, in common with every rhinological surgeon, unhesitatingly remove considerable portions of the turbinal when it is diseased, and in some cases even when, although healthy, yet owing to its anatomical form or relationships, is a source of trouble. But to remove such an important physiological structure as the middle turbinal as a matter of routine and merely to facilitate operation on other structures and sinuses, and when one can

avoid doing so, is, I hold, unsound practice; and the desirability of more conservative methods is not rarely emphasised by the irreparable damage to a patient's nasal passages, leading to crusting, dryness of the pharyngeal mucosa and so forth, examples of which come to the notice of every practising rhinologist.

Polypoid degeneration of the sinus mucosa may call for curettage, and I usually prefer to reserve this for after-treatment under cocaine anæsthesia. One may use a very small, sharp ring curette for the purpose, and though it may be firmly used against the floor and inner wall, the greatest caution should of course be observed if it is applied to the outer wall or roof of the sinus. When, as rarely happens, polypus has formed in the sinus, it is better to pick them out with blunt polypus forceps.

Special operative procedures may be considered desirable in the following circumstances :—

(*a*) Where there is a difficulty in preventing the opening into the sinus from contracting. Where the sinus is of an average capacity, and the outer portion of the anterior wall corresponding to the posterior ethmoidal cell has been removed, as well as the free inner portion facing the nasal passage, such closure is rarely a cause of trouble. But in patients whose sphenoidal sinuses are small, and one side only is affected, one may obtain a constant free opening by removing the anterior part of the sphenoidal sinus floor, either with a chisel or with strong cutting punch-forceps. When both sinuses have to be opened, I think a better procedure is to remove the posterior half-inch of the nasal septum above the choanæ narium, and then continue the removal backwards, so as to remove most of the inter-sphenoidal sinus septum, and thus throw both cavities into one. Or again, one may sometimes gain one's end by breaking down the septum between the two sinuses by means of a

bent, small, round-ended rasp, and then nibbling away the rest of the septum.

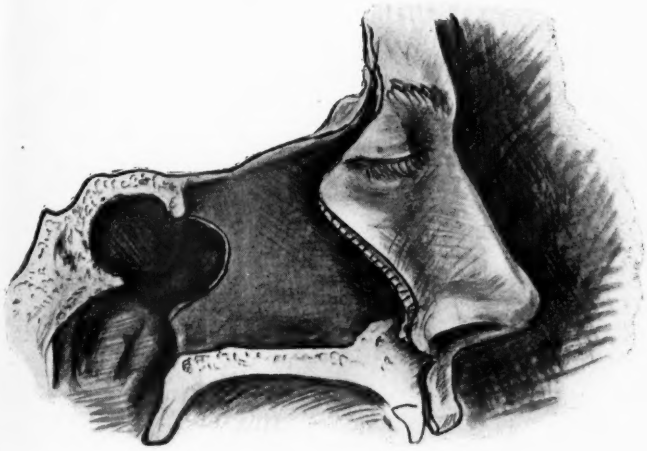

FIG. 4.

Illustrating the author's method of removing the posterior part of the nasal septum, as well as the inter-sphenoidal sinus septum, in special cases.

(*b*) When both sinuses are diseased and their development is irregular. Thus it is not rarely found that the sphenoidal sinus of one side is much larger than the other, so that the larger sinus extends well over to the opposite side, being over-developed at the expense of the other smaller sinus. In such cases, *e.g.* with a large left sphenoidal sinus, the left sinus may have been opened on both sides, and the smaller right sinus overlooked, inasmuch as the second opening made into the large left sinus through the right nasal paassge may be readily mistaken for an entrance to the small right sphenoidal sinus, pushed, so to speak, well to the outer side of the right nasal passage. But of course if this small right

sinus is infected and suppurating it must be opened, and under such conditions it is better to clear away the intersinus septum and practically make one large common sphenoidal

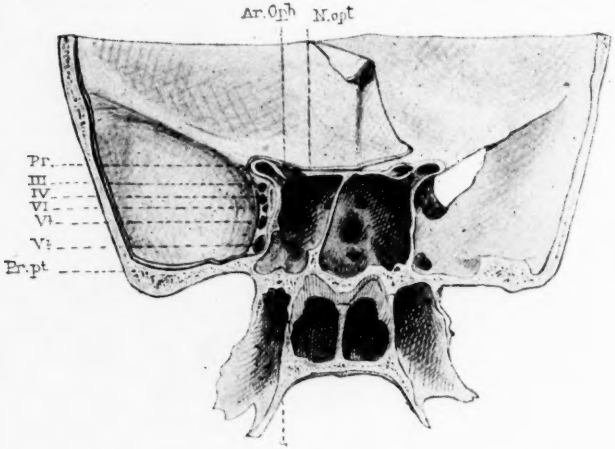

FIG. 5.

Transverse section through the sphenoidal sinuses. The dividing septum is displaced to the left, the right sinus being large, and it would be possible to enter this sphenoidal sinus through either nasal passage. (*Sieur et Jacob.*)

sinus, otherwise the smaller sinus is difficult to keep well opened.

The posterior ethmoidal cell is similarly a source of difficulty, though even more rarely, when it develops above the sphenoidal sinus proper, that is, when it clinically forms a false sphenoidal sinus above the true one. The floor of the irregularly-developed ethmoidal cell then forms a roof to the true one, and this thin intervening more or less horizontal septum may have to be clipped away.

Dangers to avoid in operating on a sphenoidal sinus.—One need scarcely allude to the disasters that ensue from missing the sphenoidal sinus and taking a direction upwards to the roof of the nasal passage in front of the sinus, since if

no force be used and only a blunt exploring cannula is employed, and the cannula is made to impinge on the anterior surface of the sinus according to the directions given in my preceding note, one cannot do any harm. If the sphenoidal sinus is small or non-existent, there is all the greater thickness of the body of the sphenoid between the nose and the foramen magnum. But when the sinus is

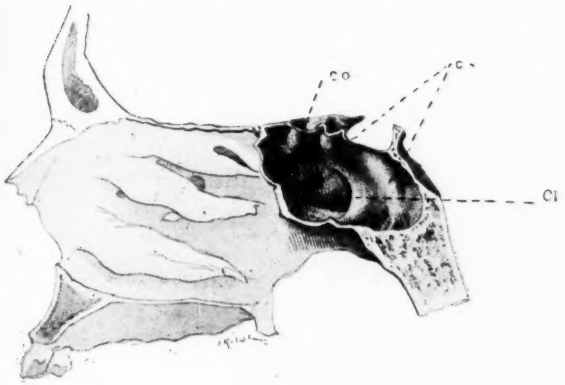

FIG. 6.

Section showing an unusually large and well-developed sphenoidal sinus which occupies almost the entire sphenoidal body and extends backwards so as to leave but a very thin plate of bone between the sinus and the foramen magnum. CO, optic canal; CI, prominence formed by the carotid canal on the outer wall of the sinus. (Sieur et Jacob.)

exceptionally large and deep, the cavity may extend backwards so that only a very thin plate of bone separates the sinus from the medulla oblongata and, very rarely it is true, there may be nothing but periosteum and mucosa, with no bone at all. For this reason when one has passed the anterior sphenoidal sinus wall and the cannula goes back four inches in an adult, one must naturally avoid using any force, and carefully feel for the impinging of the distal end

against the posterior wall. But in removing the anterior wall one need never go so far back, and the larger the sinus the less the need for touching the posterior wall.

FIG. 7.

Section of the left side of the head showing a well-developed sphenoidal sinus through which the left optic canal forms a complete tube containing the optic nerve, which is very liable to serious injury by instruments passed into the sinus (Onodi).

The canal for the optic nerve very frequently runs along the upper and outer walls of the sphenoidal sinus, and may form a very thin bony partition, or the canal with the contained optic nerve may even form a thin tube traversing the outer and upper part of the sphenoidal sinus. The danger

of injury to the nerve and consequent loss of sight from rough usage of blunt instruments in the sinus cavity, and the grave risks involved in the introduction of any sharp instrument, need hardly be further emphasised. And when the sinus has long been involved in a chronic suppuration, the possibility of softening of these thin bone partitions must always be remembered.

The outer wall, corresponding with and forming the inner boundary of the cavernous sinus, must be treated with great caution and respect. I have never seen any case reported where the cavernous sinus has been wounded, but I believe this has occurred, and naturally with fatal result.

Considerable trouble may arise from primary or secondary

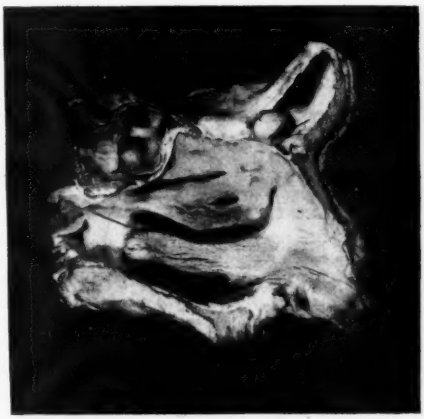

FIG. 8.

Section of the left side of the head, showing a large sphenoidal sinus with a transverse prominence, the optic canal, and more posteriorly a vertical prominence, the canal for the carotid artery.

hemorrhage from the sphenopalatine artery, as it crosses beneath the lower margin of the anterior sphenoidal wall to reach the nasal septum, where it becomes the posterior septal

artery. Injury to the artery is generally the result of removing the thick lower margin of the anterior wall, and is more likely to cause trouble if the vessel is only partly divided. Hemorrhage from this source can almost always be arrested by drawing a well-fitting postnasal plug of gauze very firmly into the posterior choana, and packing with a strip of half-inch gauze firmly against the remains of the sinus wall. In one patient under my care it became necessary to ligate the external carotid artery when the hemorrhage at once ceased; but before this was done I had tried plugging and packing the nasal passage more than once, with the result that each time the plug was removed the hemorrhage recurred. This patient had very high arterial tension. Hemorrhage from this source must always be reckoned on as a possibility, and may occur for the first time several days or even a week after the operation. I did not meet with any case of troublesome hemorrhage till I had operated on over two hundred sinuses, and after coming to the conclusion that I had rather over-estimated it as a possible occurrence, but that view I no longer hold. In the first six months of the current year I find that in my private practice I operated on twenty-eight sphenoidal sinuses in eighteen patients, and in one hemorrhage occurred, requiring plugging and packing a few hours after the operation. Of the patients operated on in my hospital clinic no case required packing, and I should estimate that not more than one per cent. is attended with troublesome primary or secondary hemorrhage.

After treatment consists in lavage of the opened sinus at first on alternate days and subsequently daily, till the purulent secretions diminish or disappear. In some cases, and where the discharge persists for more than a fortnight, it is well to mop out the sinus cavity with some strong antiseptic, such as colloidal silver solution or iodine. Especially for the first week after operation it is well to spray

the nose with cocaine solution before lavage, as it lessens the swelling of the middle turbinal mucosa, and while making the passage less uncomfortable for the patient, this also facilitates the introduction of the cannula and the escape of secretion. For lavage of the sinus I use a No. 1 or No. 2 short silver Eustachian Catheter, which fits on to the nozzle of a rubber syringe.

As a few illustrative examples of cases recently operated on for sphenoidal sinus disease, the following notes may prove useful. A, B and C are examples of *latent sinus infection,—Symptoms Marked, Signs Indefinite.*

A.—Miss T. H., aged 26, referred by Mr. Last, complained of some postnasal discharge and irritation at the back of the nose for several years, and for two years of giddiness also, and more recently a constant feeling of lassitude. She was thin and apathetic, had noticed her memory for daily events had grown very unreliable, with decreasing power of mental concentration ; at times great mental depression. Found her eyesight weak if she used it much ; had seen Mr. F. R. Cross, who found refractive errors, for which glasses were ordered. Latterly, too, digestion weak. Was referred by her medical attendant to a physician, who found her neurasthenic. Two and a half years previously had an attack of influenza, and the symptoms were said to have been noticed mainly for two years.

Examination of the nasal passages by ordinary methods revealed nothing abnormal, except some doubtful increased redness of the mucosa. Transillumination and exploration of the right maxillary antrum negative. A nasal spray with a simple saline solution ordered night and morning. She improved very much.

Nine months later she was again referred to me with all the old symptoms. Under an anæsthetic her maxillary antra and sphenoidal sinuses were explored by the suction syringe. Both antra were quite clear, but the sphenoidal sinus contained a little muco-purulent secretion. The latter on culture yielded a good growth of G.P. streptococcus brevis, also G.P. streptobacillus and G.P. staphylococcus.

Measurements :—Right : nose-tip to anterior wall of sinus 3 inches ; to posterior wall, $3\frac{5}{8}$ inches. Left : nose-tip to anterior wall, 3 inches ; to posterior wall, 4 inches.

They were large sinuses, from $\frac{5}{8}$ to 1 inch at least in depth, and the anterior wall was freely removed on both sides, and the posterior ethmoidal cells were likewise opened.

The patient left the home on the eighth day after the operation, with the "head feeling clearer and much brighter mentally." She continued to improve steadily, and a month later resumed her occupation as an author.

In this case the sphenoidal sinuses were apparently anatomically normal.

B.—Mr. J. W. S., aged 30, referred to me by Lieut.-Colonel Munro Smith, complaining of a feeling of a lump in the throat and a constant soreness, and some left frontal headache. He was mentally duller than his normal standard, and found his organising work very difficult to carry through. Some years previously he underwent an operation by Sir Felix Semon for nasal obstruction, and subsequently was again operated on by another rhinologist, as the sense of obstruction was not wholly removed. When I saw him the nasal passages were, if anything, too freely patent. But endo-rhinoscopic examination showed that the middle turbinals were boggy and almost polypoid in aspect, and strings of muco-pus were seen above his left Eustachian tube. He had also granular pharyngitis.

By the suction syringe the left maxillary antrum was found to contain no abnormal secretions; I advised against any operation, and ordered a nasal spray. Six months later he felt no better, although he had felt relief at first from the spray; and now complained not only that he felt as tired as ever, but that he felt giddy, his memory bad, with difficulty in mental concentration, and post-nasal discharge in the morning. Operative treatment then advised.

Further exploration of the maxillary antra showed that they were healthy. Both sphenoidal sinuses measured 4 inches from the nose-tip to the posterior wall. They were freely opened, as well as the posterior ethmoidal cells, and also the left frontal sinus, by my usual pernasal method. He made a quick recovery, and after a short course of lavage of all the opened sinuses, became free from all symptoms and recovered his mental alertness.

The sphenoidal sinuses were peculiarly shallow in vertical measurement, but running backwards a full inch from the anterior wall, and the anterior walls were unusually thick.

C.—A similar kind of case as regards symptoms and results. But in this patient one encountered difficulties from the fact that the posterior ethmoidal cells encroached on the sphenoidal sinus body, and were at first mistaken for the sphenoidal sinuses lying more inferiorly (as shown in diagram). These

posterior ethmoidal cells were opened with the sphenoidal sinuses and all thrown into one cavity.

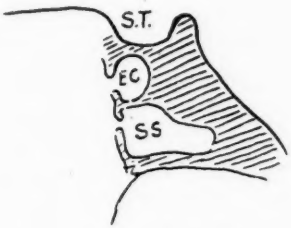

FIG. 9. CASE C.

Ethmoidal cell lying above the sphenoidal sinus, and at first leading to its being mistaken for the sphenoidal sinus.

Sphenoidal sinus Suppuration copious, Symptoms Absent.

D.—Captain L., aged 40, was on active service in Egypt, and had been suffering from morning headaches and purulent discharge from the left nasal passage anteriorly and postnasally, with occasional cacosmia (subjective bad smell). Two years previously he had a left radical antral operation at Bendigo, followed by vaccines for his frontal sinus infection, and for a time was much relieved. He was very hoarse, almost aphonic, when I saw him, and as he formerly had tuberculous lungs, was afraid that he was developing laryngeal tuberculosis. His complexion was ruddy, but he looked thin and suggestive of a tuberculous infection. Examination of the lungs and sputum did not support the suggestion of tuberculous recrudescence.

A skiagram by Mr. Bergin showed that the left frontal sinus was diseased, the right normal. Both sinuses were very large; the left antrum was dull. The sphenoidal sinuses were well brought out in the skiagram, but though large, appeared quite clear.

I advised a pernasal frontal sinus operation, with a preliminary exploration of the other sinuses whilst under the anæsthetic, not that I expected to find anything definite. It is only fair to state that I had not carefully investigated the patient for sphenoidal sinus trouble, inasmuch as operation from the left frontal sinus was undoubtedly necessary, and the method of investigating the sphenoidal sinuses whilst the patient is under the anæsthetic suffices to clear up any doubts one might have; and moreover he had *no symptoms suggesting sphenoidal sinus infection* to me, the sequel is therefore highly instructive.

On exploration by the suction syringe, one found :—
Right antrum, clear.
Left antrum (formerly operated on), pus.
Right sphenoidal sinus, copious thick pus.
Left sphenoidal sinus, copious thick pus.

So copious was the pus it simply oozed out of the proximal end of the sphenoidal sinus cannula on each side as soon as the style was removed, and more was drawn into the syringe for culture. The posterior sphenoidal sinus walls felt boggy and unhealthy.

Measurements showed that the right sinus posterior wall was $4\frac{1}{16}$ inches from the nose tip, and on the left 4 inches. The two sphenoidal sinuses communicated with each other, probably the inter-sinus septum had become partly absorbed.

The operation was completed by removing the anterior sphenoidal sinus walls, opening the posterior ethmoidal cells on both sides, making the opening of the left maxillary antrum into the nose more free, especially towards the front, and doing a pernasal frontal sinus operation so that a bougie 19 mm. in circumference dropped readily and freely into the frontal sinus.

A report by Professor Walker Hall gave the following results :—

Right antrum. Film examination : No polynuclears, no cocci. Culture : Feeble growth of G.P. staphylococcus.

Sphenoidal sinuses. Film : Masses of polynuclears and numerous streptococci. Slight phagocytosis. Culture : G.P. streptococcus longus.

The patient rapidly recovered, and with daily lavage in a short period was very much better and stronger. Two months later he still had some post-nasal discharge, but had lost all headache and gained weight. He had no difficulty in washing out his own frontal and sphenoidal sinuses.

Symptoms Marked, Signs Definite (blindness, etc.).

E.—Mr. D. H. M., aged 28, referred by Mr. Cross, as the patient had complete blindness in his left eye without any detected cause, unless it was nasal.

The patient had neuralgic headaches following slight influenza a month before, and a month later complained of blurred vision in the left eye for one day, and then left eye blindness. He said the pains in the head had been very severe. The patient assured me that he had no discharge from his nose, and that there had been none before I saw him.

Examination of the nasal passages by the usual methods

revealed no discharge or any diseased condition, but by the endo-rhinoscope a little muco-pus was seen in the roof of the nasal passages on both sides. See Fig. 10. Operation advised.

FIG. 10. CASE E.

Endo-rhinoscopic condition. In median line one sees the posterior border of the nasal septum, and on either side the posterior ends of the middle turbinals, and below them, just coming into view, the posterior ends of the inferior turbinals. A streak of muco-pus stretches from the septum upwards to the posterior wall of the pharynx.

On exploring the sphenoidal sinuses (under local anæsthesia) one obtained the following results :—

Right sphenoidal sinus, $3\frac{1}{8}$ inch, nose-tip to posterior wall.

Left sphenoidal sinus, $3\frac{1}{2}$ inch, nose-tip to posterior wall.

The posterior walls of the sinuses felt velvety, and on the right side polypoid. From the left sinus a definite blob of white pus was extracted by the syringe, and from the right thick, bloody muco-pus.

Both sphenoidal sinuses were opened, and the posterior ethmoidal cells also. An opening into the frontal sinuses sufficient for lavage was easily made by removing the fronto-ethmoidal cells.

From the right sphenoidal sinus strepto-diplococci were grown in culture ; the left sinus yielded no growth.

One of many interesting points in the last-mentioned case to which attention is invited is that further investigation showed that this patient had a very large left sphenoidal sinus, and one had entered this left sphenoidal sinus first through the right nasal passage, and subsequently again through its own left side, and *the right sphenoidal sinus had not been entered at all.* Consequently the culture attributed to the right sinus came from the left, and apparently the washing out of the sinus had rendered it so relatively clear

that the left side specimen appeared sterile. This explained the fact that the left eye was blind when apparently only the right sinus was involved. Of course, the fact that the left eye seemed rendered blind by a right sphenoidal sinus was

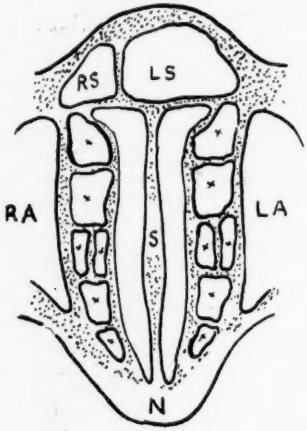

FIG. 11. CASE E.

Scheme of a horizontal section of the nose, showing how the left sphenoidal sinus, being large, was entered through the right as well as the left nasal passage, the right sphenoidal sinus being missed.

N—*Nose.* S—*Septum nasi.* R and L A—*Right and left antrum and* x *ethmoidal cells.* R S—*Right sphenoidal sinus.* L S—*Left sphenoidal sinus.*

capable of explanation by other means, but the case is cited as an example of sources of error due to anatomical irregularity, and to show the necessity of assuring oneself as to which sphenoidal sinus is entered, and not assuming that because one has entered a sphenoidal sinus through one side of the nose that the cavity properly belongs to that side.

The case also presents many points of great interest in its ocular aspects, but these I do not propose to enter into here, reserving such details for a further contribution on the

sphenoidal sinus and ocular defects. Suffice it to say that unfortunately the blindness became permanent, as the operation was not in time to save the sight, though in other patients operation on the sphenoidal sinuses restored vision. But the general condition of the patient was very much improved. The case illustrates the importance of investigating the condition of the sinuses when defective vision is not explicable by conditions other than sinus infection.

Taking these four examples of sphenoidal sinus infection together, it is a striking fact that the one patient in whom the sinuses were full to overflowing with pus had no symptoms (apart from signs) suggesting that they were the seat of disease, while the other three patients, who all had marked symptoms, had very little pus in the sphenoidal sinuses, which nevertheless were infected and diseased. I suggest that in the numerous polynuclears in the one case, as contrasted with paucity of polynuclears in the others, we have an explanation of the remarkable differentiation to which I have drawn attention.

Progress of the Medical Sciences.

DERMATOLOGY.

Psoriasis occurs in both sexes and at all ages. The large majority of these cases fall under simple psoriasis, but it is often difficult to decide whether syphilis or seborrhœa may not play a part or better explain it. Some authors regard psoriasis as the extremely dry form of seborrhœa. Supposing one is inclined to the view that the patient is suffering from syphilitic psoriasis, one has to make a differential diagnosis between this condition and pityriasis rosea (Gilbert's disease), and it is possible to confuse a lichen ruber planus with a simple psoriasis. To make the diagnosis between simple psoriasis and some stage of a syphilitic dermatitis, one is guided somewhat by the site selected, the former preferring the limbs and the extensor sides, and is very fond of the elbows, knees, and scalp: the syphilitic rash is more common on the trunk, and the spots are as a rule smaller: the colour, instead of being pink, is usually dark red. Then there is the infiltration test: simple psoriasis is a superficial thing. If a specific eruption is pinched up there is felt to be a distinct deposit under the skin, which is totally absent in simple psoriasis. Again, in nearly all cases of dermatitis depending upon syphilis there are likely to be permanent scars—the white shilling scar; there is never any scarring in simple psoriasis. One is very much helped in differential diagnosis by other well-known signs and symptoms of specific disease. We should not forget that both conditions may be present at the same time.

I have been puzzled very much in deciding between pityriasis rosea and syphilitic psoriasis, and the only safe plan is to wait for a time, for without any treatment, the former often suspicious-looking eruption disappears completely in about six weeks. Do not be tied down exclusively to the skin condition, but look to the glands and other organs.

When a lichen ruber planus becomes generalised, it may be at first perhaps mistaken for psoriasis. But the intense itching of the former stands out from the large majority of cases of psoriasis, whether simple or specific. This form of lichen prefers the flexor sides of the wrists, the neck, and the inner surfaces of the thighs. The characteristic papules are always present, even in extensive cases of general eruption, and would at once settle the diagnosis.

I was once asked to see a young lady with what looked like lupus erythematosus (bat's wing) of the face and across the bridge of the nose. Dr. Radcliffe Crocker saw her, and took

exactly the same view. Some years previously she was known to have suffered with simple psoriasis, and after a time this is what it resolved itself into, and was relieved by the ordinary remedies for that condition.

When one feels certain the case is simple psoriasis, it is only fair to tell the patient that it attacks the healthiest people, that it is a harmless rash, and, like seborrhœa capitis, it is incurable permanently, and that the palliative remedies recommended must be continuously persevered with.

A pretty sure cure for psoriasis is to keep the patient in bed, with a daily hot bath with black soap. It is astonishing what a change of air will do in some cases. A middle-aged lady covered with the eruption went away, when it rapidly cleared up, and had not returned twenty years afterwards. Patients frequently notice that simple psoriasis gets well of itself, and then when they least expect it lights up again in all its fury.

I think a lessened nitrogenous diet, with periodical Turkish baths, and daily exercise in the open air with the idea of promoting sweating, keeps off attacks. Arsenic undoubtedly controls chronic psoriasis, if given in gradually increasing doses, and makes recent cases worse. The best internal drug for the latter is salicin, in 15 grain doses three times daily. Salicylic acid ointment, or any other reducing agent, soon gets rid of the scales, but it is unwise to rub it in too vigorously over an extensive surface for fear of absorption. The same applies to all tar applications, and particularly when used for children. There is one serious condition which may develop in connection with simple psoriasis, viz. pityriasis rubra, or dermatitis exfoliativa. It arises from too active external treatment, and chiefly with such remedies as chrysarobin, although if carefully used it is the surest and quickest of all remedies in the cure of psoriasis.

An eruption of the palms and soles is sometimes called psoriasis, but it is usually of an eczematous nature, and is often cured by avoiding soap and water and rubbing in glycerine. If there is much thickening, rub in salicylic acid ointment, and wear loose cotton gloves. For psoriasis of the scalp it is well to rub in a drachm of white precipitate to one ounce of soft soap and vaseline.

Byron Bramwell's plan of administering thyroid extract is quite empirical, and should not be given in out-patient practice unless the patients are being kept in bed.

In a case of psoriasis, whether the scalp is involved or not, do not fail to wash it once or twice a week with soap and water.

N.B.—It is now known that the long-continued taking of arsenic conduces to cancer.

HENRY WALDO.

Reviews of Books.

Diseases of the Arteries, including Angina Pectoris. By Sir CLIFFORD ALLBUTT, K.C.B., F.R.S., F.R.C.P., D.Sc., etc. In two volumes. Pp. xi. 534, vi. 559. London: Macmillan & Co. 1915. Price 30s.

Surely no one has previously written two such volumes on the medical aspects only of the arterial system. The undertaking of such a task implies a degree of knowledge and erudition which few men would claim to possess. That it has been done by the Regius Professor of Physic in the University of Cambridge would at once commend the work as a masterly one; but, further, the fact that the Regius Professor is Clifford Allbutt, whose name has for so many years connoted the highest possible excellence in any work he undertakes, places these volumes on a pedestal of their own. We venture to think that no living man was better qualified to undertake the writing of an authoritative monograph on this difficult and little-known subject, and yet the author commences his preface by commenting on "these faults of a book which lie in the quality of its author." He says: "Of course, we cannot know all, nor anything like all; much of the detailed structure and of the fuller outlines of every subject is still obscure or out of sight; but can the author reasonably pretend that he possessed interpretation enough ro enable him to deal with the facts provisionally?" He further points out that "by leaving some data in the background and bringing others into high relief, by painting a little colour here and throwing a little shadow there, it is not difficult to construct an argument far more taking, far more 'readable,' than pages of outlines still vague, of meanings still tentative, of facts still insecure and unbalanced. Immature 'scientific' truth, like the ugly duckling, is plain in feature, in form unattractive, and very cold in colour."

The subject "Arteriosclerosis" occupies the whole of vol. i. and the first eighty pages of vol. ii. Then follow some seventy pages on "Aortitis," and nine chapters on "Angina Pectoris" complete the author's scheme.

Much of the work centres round the condition described and named by the author Arterial Plethora or Hyperpiesis, the malady being called Hyperpiesia; this name is to connote, not the high arterial pressure only, but the whole morbid series, not chronic renal disease, of which high arterial pressure is one term. This condition persisting, we get one variety of arteriosclerosis, the effect of persistently high blood-pressures. Here we come upon a condition which appears to have been vastly on the increase in recent years, and more especially in

America, and of course there is much room for doubt as to how much of what is reported as such is a convenient clinical term not necessarily founded on pathological investigation or knowledge. Some accuracy has been given to the question by the introduction of various mechanical means of registering the phases of arterial pressures; the sphygmograph gave much useful knowledge, but the various forms of pressure recorders, of which Oliver's sphygmomanometer is the type, have done much more to give accuracy than the tactus eruditus can ever do.

This pressure-gauge is now in general use, and nowhere more than in the United States, where the question is frequently asked by the Insurance Societies, "What is the blood pressure?" The numerous instruments advertised, and the books written thereon, are an index that the profession in general realises the value of mathematical accuracy where possible, and that the use of these instruments is no longer left to the physiologist and pathologist, but comes into the usual routine of clinical work. The author has now for many years urged that the profession paid too little attention to the question of blood-pressure, but it is obvious that in the future it will form one of the most important grounds on which the prognosis in brain, kidney, and arterial diseases will be estimated.

In vol. ii., chap. ix., the author endeavours to differentiate between the hyperpietic, the toxic, and the senile or decrescent sclerosis; but he adds that "so long as arteriosclerosis is accepted as a disease statistics are impossible: the Insurance tables are compiled on heterogeneous materials; or, if blood-pressures are taken, only the systolic are recorded."

The author has in many ways and various times pronounced his views on angina pectoris. They have occupied many addresses, and have been partially published, but are now republished in full, after revision, and form the major part of the second volume.

Studies in Blood Pressure, Physiological and Clinical. By GEORGE OLIVER, M.D. Lond., F.R.C.P. Edited by W. D. HALLIBURTON, M.D., F.R.S. Third Edition. London: H. K. Lewis & Co. Ltd. 1916. Demy 8vo, pp. xxiii. 240. Price 7s. 6d. net.

The untimely death of the author left the major part of this volume ready for the printer. The new edition was placed in the hands of Prof. W. D. Halliburton, who has added certain chapters to complete the views of the author. The obituary notice from *The Lancet*, January 8th, 1916, and an article of the same date on "The Measurement of Blood Pressure," sums

up much of Dr. Oliver's work. After thirty-three years of strenuous life at Harrogate he retired to London and Sidmouth for the winter months, and died at Farnham, Surrey, on December 27th, 1915. He wrote much on the Harrogate waters, and a book on the practice of bedside urine testing by means of Oliver's testpapers reached a fourth edition. But it was always the blood and its circulation that most attracted his attention, and various instruments, now well known and in common use, were brought under medical notice as clinical instruments. Of these the sphygomanometer is by far the most important, and will long be associated with his name ; but the fallacies in its use are many, and experience alone can enable the observer to make full use of the phonendoscope attachment to the mercurial manometer.

Another instrument, the arteriometer, is devised for the purpose of determining the internal diameter or calibre of the artery. Chapter x. describes its construction and use, and the author believed that the conjoint use of this apparatus with the manometer would be a source of sustained interest in enabling one to follow the relation between the vaso-motor state of the arteries and the blood-pressure, and thus daily exemplify in practice our physiological knowledge of that relation. Chapter xi., on venous and capillary pressure, shows that the author was a keen observer of nature, and did not always depend on any elaborate mechanical apparatus for his results.

On Modern Methods of Treating Fractures. By ERNEST W. HEY GROVES, M.S., M.D., B.Sc. Lond. Pp. Bristol : John Wright & Sons Ltd. Price 7s. 6d. net.

This thoroughly original work brings to bear great mechanical ingenuity, experience and skill upon a subject that might have been thought threadbare. It is a record of one of the most important advances that British surgery has made during the war. Both for civil and military practice the author's novel methods are worthy of careful attention. The illustrations are very good, the text clear and concise, and forms a very able presentment of a department of surgery which the author has done much to advance.

When to Advise Operation in General Practice. By A. RENDLE SHORT, M.D., B.S., B.Sc. Lond. Pp. vi., 279. Bristol : John Wright & Sons Ltd. 1916. Price 5s. net.

This handy book largely consists of the application of the knowledge so ably collected and edited by Mr. Short in the *Index of Prognosis and End-Results of Treatment.*

Patients cannot be treated like mathematical propositions, and there is in each case an individual factor which must be considered, and which prevents the universal application of hard and fast rules as regards the desirability or otherwise of operation.

The author recognises these limitations, and tells us that "we can only legislate for the normal."

The knowledge of what is usually necessary in the average case is most helpful to the general practitioner, and the opinions of the author are expressed in clear language, which is summarised in dogmatic form at the end of each chapter.

There is a creditable vein of conservation in the book, which may help to dispel the popular illusion that the consulting surgeon always wants to "use the knife."

The practitioners for whom this book is intended may rely upon its sensible advice, and will find it of great value in cases of doubt and difficulty.

There is a good index, which further increases the utility of the work.

"Alinement" occurs twice on page 226.

Introduction to Dermatology. By NORMAN WALKER, M.D., F.R.C.P. Sixth Edition. Pp. xiv., 363. Edinburgh and London: William Green & Son. 1916. Price 15s. net.

This highly successful treatise on skin diseases has reached its sixth edition, and is undoubtedly a great boon to medical students. The editor has taken a wise lead in advising them to call as few cases as possible "eczema." He has given them means for exterminating a large number of cases which were formally called by this name.

Although the book is small as compared with most others on this subject, it contains all the valuable information which is really necessary, and is the outcome of powers of concentration unusually developed.

The book is lavishly illustrated with really good pictures, which must prove very helpful. The articles on dermatitis venenata and dermatitis autophyta are cleverly done, and we consider reflect great credit on a difficult subject of dermatology. Perhaps the author has laid himself unduly open to attack when he states: "There is no room for doubt that certainly in the earlier stages exposure to radium is the most satisfactory method of treating rodent ulcer." We are of opinion that most dermatologists think they get better results from a full pastille dose or more of X-rays. Some workers first apply carbon dioxide snow, and then after a few days X-rays.

Diseases of the Nose and Throat: A Text-book for Students and Practitioners. By Sir St. Clair Thomson, M.D. Second Edition. Pp. xvi. 858. London: Cassell & Company Ltd. 1916.

The second edition of this excellent and very complete treatise on diseases of the nose and throat, coming so relatively shortly after the first edition, which we reviewed at length, calls for no extended notice. But several of the sections have been largely revised and re-written, while an entirely new section has been written on intranasal dacryocystotomy, and one on the nasal route to pituitary tumours. Amid the wealth of information afforded, we were disappointed to find no adequate reference to endo-rhinoscopic methods, without which many cases of nasal catarrh remain obscure, though so easy to detect and elucidate by means of the "nasal periscope." Further, some of the more recently-developed diagnostic methods, and endonasal operative measures, with which we have been familiar for some years, receive scant notice. For the wealth of illustration, both coloured and black and white, we have nothing but praise.

Diseases of the Throat, Nose, and Ear. By W. G. Porter, M.B. Second Edition. Pp. xvi. 280. Illustrated. Bristol; John Wright & Sons Ltd. 1916. Price 7s. 6d. net.

A special interest attaches to this edition, as it is brought out during the absence of the author, who is on service with the British Expeditionary Forces, and hence has been revised by Dr. Peter McBride, who also, in the introductory preface, expresses his view that the work admirably fulfils its object, and in this we fully concur. Dr. Porter's handy treatise not only preserves throughout the due sense of proportion, omitting little that one ought to find in a faithful and up-to-date picture of modern oto-laryngology for the general practitioner and senior student, but, what is perhaps more difficult to attain, not going beyond its purposed limitations. The matter of the text is accurately and clearly set forth; the illustrations, both coloured and black and white, are typical and plentiful without being so lavish as to confuse by unnecessary multiplication. It is a text-book which thoroughly deserves its excellent reputation, and reflects the highest credit on author and producer alike.

Principles of Diagnosis and Treatment in Heart Affections. By Sir James Mackenzie, M.D., F.R.S. Pp. viii. 264. Henry Frowde, London. 1916.

The author has prepared former postgraduate lectures so as to make a series of chapters on various heart conditions, many

problems of which have been elucidated by means of the polygraph and electro-cardiograph, or other instruments to which Sir James has devoted the most careful attention, and has himself devised or improved. Yet the first chapter suffices to remind the reader that these mechanical aids to research and diagnosis, closely associated as they are with the author's work, are in his estimation but means to an end. Hence much stress is laid on the proper appreciation of the patient's sensations as enabling the physician to understand many obscure complaints; as, for example, the recognition of abnormal heart action, and the author emphasises the necessity for studying the patient's sensations while they are present, and all associated phenomena carefully noted, and he considers that the general practitioner alone has the real opportunity for properly investigating these phenomena. A good deal of space is devoted to the subjective and objective signs of heart failure. But perhaps the author is at his best when discussing heart irregularities, murmurs, auricular fibrillation, while his section on the principles of treatment is of the utmost value.

Circulation and Respiration. Second Series of Collected Papers. By Sir THOMAS LAUDER BRUNTON, Bart., M.D., D.Sc. Pp. xxi. 719. Illustrated. London: Macmillan & Co. Limited. 1916. Price 5s. net.

Many of these papers are old and valued contributions, while the more recently written are representative of the later researches and teachings of one of the most distinguished and scientific physicians, who. though no longer in the flesh, will live for many years in the spirit of medical science. Medical libraries without these papers are incomplete, and though for the most part the contents of this volume are no doubt already on their shelves in the various journals in which they were first published, the convenience for purposes of reference of the collected series, published in book form, will be appreciated far and wide.

Collosol Sulphur and Collosol Sulphur Cream.—Messrs. OPPENHEIMER, SON & COMPANY.—Colloidal preparations have come much into favour, and one of the latest developments of the Crookes laboratories in colloids is this sulphur colloid. It is especially recommended for rheumatic conditions, and where sulphur is considered of service is worthy of trial. The collosol sulphur liquid is a pleasant method of administering sulphur internally.

Editorial Notes.

The late Sir Victor Horsley.

A PERSONAL note from one who was closely associated with this great-hearted colleague in Mesopotamia, where his patriotic service cost him his life, cannot fail to interest all our readers. Captain Carey Coombs writes as follows :—

"The first newspaper I bought in England on landing at Southampton on July 23rd contained the news of Sir Victor Horsley's death. I had last seen him on June 7th, the day before I left Amara on the long homeward trip. He was full of plans as to what he was going to do after the war. One of his dearest projects was an inquiry into the arrangements for supply and transport in the Indian Army, particularly in its medical aspects. On his way out to Mesopotamia he had visited India, and the visit had not been forgotten in Bombay several months later. When he reached Mesopotamia there was not much surgical work doing, but he threw himself with his accustomed zeal into the task of collecting data for a report on the conditions of the medical services in that country. Those who knew him can guess at a little of the attitude of mind which he adopted in regard to the management of the transport problem on the Tigris.

"I saw a good deal of him during my last few weeks at Amara. It was interesting to see how completely he had captivated even those who expected to find themselves

antagonistic to him. They had known of his views, but had no knowledge of his personal charm.

"From the accounts I have read, the heat must have 'got' him while walking over an open stretch near our hospital. He persisted in going about his business out of doors during the heat of the afternoon, a thing which no one could do with impunity. When we ventured to remonstrate with him he declared that the heat agreed with him, and that his experience of sun in Egypt and Gallipoli had inured him to it. Mayhap he believed this, and thought himself able to defy or ignore the sun's effects. We had some interesting discussion as to the actual factor in the sun's rays responsible for its deleterious effects on man. That it was not the heat of it was suggested, so he argued, by the fact that sun-burn is more likely to follow exposure to sun-glare at high altitudes than in tropical plains.

"Once I asked him, 'When are you going home?' To which he said, 'What do you mean, my dear fellow? I am here for as long as I am wanted.' I had an idea that he had come out for a definite period, to return later to England to report. Of course, he could have gone home if he had wished, but he preferred to face the discomfort and danger of the hot season, believing that therein lay his duty. The impression left upon my mind of his utter forgetfulness of himself, his absorption in the welfare of that great gentleman the British soldier, will never be effaced. Of his kindness to me personally I say little, but remember much. Not only in Amara (which he once described in a letter as a 'burning mud-flat, surrounded by cholera and dysentery') is there a momunent sacred to his memory, but also in the minds of that vast host of his fellows whom he was never weary of serving with all his great gifts."

The L.G.B. Scheme for the Treatment of Venereal Diseases.

GREAT issues hang on the methods that may now be instituted with a view to giving practical effect to the conclusions of the Royal Commission on Venereal Diseases. The action taken by the Local Government Board, and the regulations laid down in their scheme, constitute a commendable endeavour to lose no time in arriving at a satisfactory solution of a very difficult problem, and there need be no doubt that the medical profession will do their utmost to support the essential principle of the scheme, viz., an endeavour to stamp out, as far as possible, the ravages of diseases coming under the term venereal.

It would be superfluous to relate in detail the regulations referred to, they have already been before the medical profession, as well as available for the layman for some months. But there are certain questions involving both the medical practitioner and the voluntary hospital system that merit our careful and considerate attention before the scheme matures.

The outstanding features of the scheme may be summarised :—

a. The provision of laboratory facilities for diagnosis and for guidance in treatment, and " the laboratory should be in charge of a skilled pathologist of experience in this particular work." The arrangements for carrying out the scheme are to be made by the County Councils of every county and borough, subject to the approval of the Board, and the Councils are to consult their Medical Officers of Health as to the arrangements best suited to the circumstances of the areas concerned. But responsibility for the measures to be adopted is to be undertaken by the State.

b. The treatment should be available for the whole community, and the Commissioners recommend that local

authorities should approach general hospitals with a view to securing facilities for treatment. "In negotiating with the authorities of hospitals the Council should make it clear that the treatment provided must be available for all comers, irrespective of the place of residence or the means of the patient." The Government grant of 75 per cent. of the cost of the approved schemes of treatment has been fixed at this high proportion in order that the facilities provided under these schemes should be available for the whole population.

c. In all cases it will be important to arrange that the clinics are not specially designated as for venereal diseases, and that nothing is done to distinguish the patients who attend for treatment of these diseases.

Of the scientific exhaustive and painstaking effort of the Royal Commission we have only a feeling of admiration and thankfulness. Nothing could more clearly demonstrate the need for a very special effort to cope with evils that have made disastrous inroads in the health and vitality of the community. It is, we trust, an earnest only of further *State* efforts to meet in the open and to overcome successfully the ravages of disease at any wise cost, and the recognition that "no short-sighted parsimony should be permitted to stand in the way of all means that science can suggest for guarding the present and future generations, upon whom the restoration of national prosperity must depend," is a great advance on the idea that has hitherto prevailed, viz., that it is a charity only, rather than sound political economy, to relieve sickness and suffering in the poorer members of the community.

Now we are to realise that it is cheaper that we and our offspring should be guarded against venereal infection, and worth almost any price to ensure this as far as possible, and it is high time that such excellent sense should be

brought home to the community. But at what cost? Great issues are at stake, and hence some feel that the evil must be remedied at any cost.

The voluntary hospitals are the creations of the charitable public to provide what the State has failed to provide for the necessities of the sick poor, and it is essential that they should be restricted to the poor, *i.e.*, to those who are not in a financial position to provide for their own medical needs that which the State—directly or indirectly—has not afforded. If a patient is suffering, say from cancer, or heart-disease, unless it be through the poor laws and their infirmary wards, the State makes no provision whatever for his treatment. But the charitable purse has provided for all such who cannot afford to do so for themselves; though every well-regulated hospital declines to open its doors to those who can well afford to pay for adequate medical attendance, since to do otherwise would be a fraud. Why, then, should the wealthy patient who contracts venereal disease be singled out as the one class of patient for whom the fundamental basis of voluntary hospital systems is to be set at naught. If it is conceded that the medical charities supported by voluntary subscription is open to allcomers suffering from venereal diseases, by what reasoning are the doors to be closed to any well-to-do patient whose eyes, ears, lung or stomach is a source of trouble or who may be suffering from inebriety. Doubtless the argument will be put forward that treatment for venereal diseases is henceforth a State provision, and that all other complaints, unless it be a tuberculous or infectious fever, are cold-shouldered by the State or other public authority, not because the urgency is less acute for the individual, but on the ground that cancer of the stomach is a question for the individual, while gonorrhæa may spread. The real reason for grafting the State venereal disease clinics on to

the voluntary hospitals is that the good name of these charities may serve as a convenient cloak for the susceptibilities of venereal patients who are not to be compelled to notify their disease.

The Royal Commission's report refers to another important question, the widespread existence of unqualified persons or quacks engaged in the treatment of venereal diseases and states that the Commission " has no hesitation in stating that the effects of unqualified practice in regard to venereal diseases are disastrous, and that, in our opinion, the continued existence of unqualified practice constitutes one of the principal hindrances to the eradication of those diseases." The medical profession has long been of that opinion, and now that the State is to make the much-needed provision for the treatment of venereal diseases without unworthy suspicion of ulterior motives, we can again urge the wisdom of forthwith making it penal for any unqualified person engaging in such disastrous practices, *i.e.*, disastrous to the individual and to the community. Yet this obviously wise course is to be left for future consideration, and we are to rest content with an inactive, pious opinion, instead of clear-cut legislation on this point.

While it is well to set forth clearly objections to the scheme on which the Government have decided to take action, there should be no half-hearted support or any wavering in endeavour to make the scheme successful by those hospitals which undertake their share in the work, and as the scheme is open to modification after it has been in operation for a limited period, practical experience may enable us to arrive at useful conclusions for our future guidance, and it is better to make mistakes than to hesitate unduly to embark on a work that is a matter of very grave urgency and of momentous national import.

By no means secondary in point of value is the necessity

for maintaining the interest of general practitioners in the scheme when launched. We might have referred to the *interests* of the practitioners, for that would only be bare justice, but prefer to enlarge on this aspect of the question as it concerns the general public rather than that of medical practitioners. A moment's reflection must make it clear to every thinking man that any scheme which tends to the exclusion of the general practitioner in dealing with the treatment of venereal diseases is foredoomed to failure in the attainment of the essential aims of the Royal Commissioners' report, and that this was the view of the Commissioners no one who reads the report can doubt. Every possible facility for the general practitioner to obtain adequate training in the latest advances in diagnosis and treatment is to be made available for all who feel the need of such assistance, and their patients will correspondingly benefit.

But as teachers must be experts, the special clinics will have to be under the charge of those who are prepared to devote a large share of their time to this special work. The British Medical Association has recommended that the commencing salaries of whole-time medical officers of clinics set up under the schemes be not less than £750 per annum, exclusive of expenses and clerical assistance, and where a whole-time assistant is necessary to a part-time senior medical officer, he should be paid not less than £350 per annum (non-resident); and for part-time senior medical officers of these clinics the rate for one or two sessions per week (not exceeding 2½ hours a week each) should be £3 3s. per session; or, if there be three or more such sessions per week, £2 12s. 6d. per session should be paid—that is in London. Curiously enough, the British Medical Association deduct one guinea per session from these London rates if the clinic is a provincial one. We demur to the suggestion that the rate should be reduced for increasing numbers of

sessions per week, and really three guineas for 2½ hours work by an expert is little enough, and is intended, no doubt, to indicate that the best expert advice is not to be available, or if it is, that the State payment should be inadequate remuneration. But we demur all the more strongly to the remarkable suggestion that the work, if done in London, is worth 33 per cent. more than in Bristol. We wonder what difference would be made between male and female, if say a lady doctor took up the work in so far as it concerned women and children. We trust that, once for all, the provinces will let it be known that they will not concur in these invidious distinctions in the payment of London and provincial medical work. It is archaic to suggest that the same practitioner who gets £315 a year in London is only worth £210 in Bristol, Manchester, Lverpool, or Birmingham. To admit such a principal in connection with this scheme would lead to grave misfortune.

That the scheme will go through is no longer a matter for discussion. We are indebted to Mr. Bishop Harman, F.R.C.S., Hon. Secretary of the Metropolitan Counties Branch of the B.M.A., for the following information: "There are no less than twenty-two hospitals in the London County area which are arranging to work the home counties scheme as from January 1st, 1917, viz.: St. Bartholomew's in the City of London, and for the L.C.C., Bucks., Essex, Hertford, Middlesex, Surrey, Kent, and the county boroughs of Croydon, East and West Ham, twenty-one hospitals come into the scheme, viz.: Charing Cross, Great Northern, Guys, Great Ormond Street (Children's), King's College, Lock, London, Middlesex, Miller's at Greenwich, New Women's, Royal Free, Seamen's at Greenwich, South London Women's, St George's, St. John's, St. Mary's, St. Paul's, Red Lion Square, St. Thomas', University College, West London, Westminster."

Death of Sir George White, Bart., President of the Bristol Royal Infirmary.

THE sudden death on November 22nd of Sir George White, a powerful factor in the Bristol Medical Charities, was not only a cause of genuine sorrow to his many friends, but deprives our oldest Medical Charity of a brilliant and enthusiastic organiser, at a time when perhaps as never before such qualities as the late President possessed in singular degree are needed. Few men have presided over and guided so many large concerns as did Sir George White, fewer still possessed in equal measure the power of foreseeing and of initiating schemes to meet future events. When tramway lines were first laid down in Bristol, he as a young man realised the possibilities of their development far and wide; in later years he it was who initiated the Bristol Aeroplane Works, and despite continual rebuffs from our Government, poured enormous sums into the concern to develop works which are now a valuable asset in the present war; hence when he accepted the Presidency of the Bristol Royal Infirmary not many years since, he very soon realised that it was absolutely essential to provide the long-needed new housing and equipment which he induced the Governors to sanction. To do this it was necessary to expend nearly all the accumulated endowment of the Charity; but having thus given it a splendidly-equipped new building, the King Edward VII. block, he set to work to organise support by subscribers, till the increased subscription list far exceeded the former annual income from endowment. Thus while the dead hand built the Institution the living hand supports it.

Those who are associated with the Royal Infirmary will greatly miss his genial presence and that of Lady White—who died but a year ago—for many years to come; and we desire to convey to his son and daughter and other members of the family our sincere condolences for the loss which in a very real sense we share.

The Library of the Bristol Medico-Chirurgical Society.

NINETY-FIFTH LIST OF BOOKS.

The following books have been received since the publication of the List in September, 1914.

September, 1915.

Albutt, C. .. .. *Diseases of the Arteries* 1915
Ballantyne, J. W. .. *Encyclopædia Medica* .. Vol. I. 2nd Ed. 1915
Ballantyne, J. W. .. *Encyclopædia Medica* .. Vol. II. 2nd Ed. 1915
Baylisis, W. A. .. *Principles of General Physiology* 1915
Berkeley, C. and Bonney, V. *Guide to Gynæcology* 1915
Brown, W. and Murphy, J. *Practitioner Encyclopædia of Medical Treatment* 1915
Buchanan, Prof. .. *Forensic Medicine and Toxicology* 1915
Bulkley, L. D. .. *Cancer and its Treatment* 1915
Bruce and Dilling .. *Materia Medica and Therapeutics* .. 10th Ed. 1915
Bryce, T. H. .. .. *Quain's Anatomy* Vol. IV., Pt. I. 11th Ed. 1915
Chambers, R. .. .. *Dictionary of Eminent Scotsmen* .. 7 Vols. 1868
Delorme, E. .. .. *War Surgery* 1915
Dupuy, G. M. .. *The Stretcher Bearer* 1915
Garrison, T. H. .. *A Memoir of J. S. Billing* 1915
Glaister, G. .. .. *Medical Jurisprudence and Toxicology* 2nd Ed. 1912
Glaister, G. .. .. *Medical Jurisprudence and Toxicology* 3rd Ed. 1915
Groves, E. W. Hey .. *Gunshot Injuries to Bones* 1915
Harris, W. .. .. *Nerve Injuries of Bones* 1915
Hodgson, D. .. .. *Prostrate Gland* 1856
Hornsley, J. A. and Schmidt, R. E. *The Modern Hospital* 1913
Hope, E. W. .. .. *Text-book of Public Health* .. .. 8th Ed. 1915
Horder, T. J. .. .. *Cerebro-Spinal Fever* 1915
Horsley, Sir V. and Sturge, M. D. *Alcohol and the Human Body* 5th Ed. 1915
Hutchinson, R. and Sherrin, J. *Index of Treatment* .. .. 7th Ed. 1915
Jones, R. .. .. *Injuries to Joints* 1915
Kenwoods, H. R. .. *Health in Camp* 1915
Lejars, F. .. .. *Urgent Surgery.* (Translated from the French by W. S. Dickie) .. .. Vol. II. 3rd Ed. 1915
Llewellyn, Ll. J. and Jones, A. B. *Fibrositis* 1915
Luff, A. P. and Candy, H. C. H. *Manual of Chemistry* .. 5th Ed. 1915
Martindale, W. H. and Westcott, W. (Rev.). *The Extra Pharmacopœia* .. .. Vols. I. and II. 16th Ed. 1915
Mercier, C. A. .. *Leper Houses and Mediæval Hospitals* 1915
Morrison and Richardson *Abdominal Injuries* 1915
Morrison, R. G. .. *Life a Poem* 1915

Mowat, H.	*X-rays and How to Produce and Use Them*	1915
Murphy, J. K.	*Wounds of the Thorax*	1915
Nash, J. T. C.	*Evolution and Disease*	1915
Paterson, A. M.	*Manual of Embryology*	1915
Phillips, L. P.	*Amaibiasis and the Dysenteries*	1915
Power, D.	*Wounds in War*	1915
Rawlings	*Surgery of the Head*	1915
Rion, H.	*Childbirth in Twilight Sleep*	1915
Saunby, R.	*Urgent Symptoms in Medical Practice*	1915
Shipley, A. E.	*The Minor Horror of War*	1915
Short, A. R.	*Index of Prognosis.* By various writers. Edited by A. R. Short	1915
Squire, J. E.	*Medical Hints*	1915
Still, F. G.	*Disorders and Diseases of Children* 3rd Ed.	1915
Todd, T. W.	*Clinical Anatomy of the Gastro-Intestinal Tract*	1915
Thomson, H. C.	*Diseases of the Nervous System* .. 11th Ed.	1915
Thomson and Myles	*Manual of Surgery* .. .. Vol. I. 5th Ed.	1915
Thomson and Myles	*Manual of Surgery* .. .. Vol. II. 5th Ed.	1915
Urquhart, J.	*The Life and Teaching of W. H. Gillespie*	1915
Vallow, H.	*The Inevitable Compliment*	1915
Werner, L.	*Swanzy's Diseases of the Eye* .. .. 2nd Ed.	1915
Wright, Sir A. E.	*Wound Infections*	1915

TRANSACTIONS, REPORTS, JOURNALS, etc.

American Association of Genito-Urinary Surgery .. .. Vol. IX.	1915
American Association of Obstetricians, Transactions of the Vol. XXVII.	1914
American Laryngological Association, Transactions of the	1915
American Pediatric Society, Transactions of the .. Vol. XXVI.	1914
American Surgical Association, Transactions of the .. Vol. XXXII.	1914
Botany, Part II.	1856
College of Physicians of Philadelphia, Transactions of the Vol. XXXVI.	1915
Edinburgh Obstetric Society, Transactions of the .. Vol. XXXIX.	1914
Edinburgh Pharmacopœia	1817
Index Catalogue of the Surgeon-General of United States Army Vol. XXXIII.	1914
Journal of Laryngology	1914
London Dermatology Society, Transactions of the	1914
Medical Annual	1915
Medical Society of London, Transactions of the Vol. XXXVII.	1914
Medical Society of London, Transactions of the Vol. XXXVIII.	1915
Smithsonian Report, The	1914
Tuberculosis, Yearly Book .. .. Vol. I.	1913–14

The following periodicals were discontinued at the end of 1914 :—

American Journal of the Medical Science.
Annals de Dermatologie.
Archives of the X-rays.
Archiv für klinische Chirurgie.
Bookseller, The.
British Journal of Children Diseases.
Bulletin de la Societe de Dermatologie.
Current Literature.
Duetsche Zeitschrift für Chirurgie.
Journal of Hygiene.
Journal of Obstetrics and Gynecology.
Journal of Nervous and Mental Diseases.
Journal of the Royal Sanitary Institute.
Library, The.
Library Association Record.
Library World, The.
Medical Library Association Journal.
Progressive Medicine.
Parisitology.
Revue de Chirurgie.
Surgery, Gynecology and Obstetrics.
Zeitschrift für Urologie.
Zentralblatt für Chirurgie.
Zentralblatt für Gynäkologie.
Zentralblatt für innere Medicine.

The Quarterly Journal of Medicine and Surgery, Gynecology and Obstetrics, is kindly given by two members.

NINETY-SIXTH LIST OF BOOKS.

The following have been added to the Library since September, 1915 :—

BOOKS.

November, 1916.

Barr, W. I. K. .. *Theraphy in Pulmonary Tuberculosis* 1916
Basu, B. D. .. .. *Dietitic Treatment of Diabetes* .. 7th Ed. 1916
Batten, F. E. .. .. *Acute Poliomyclitis* 1916
Beesley and Johnston *Manual of Surgical Anatomy* 1916

Bosanquet and Eyre	*Serums, Vaccines, and Toxins* .. .. 3rd Ed.	1916
Brunton, Sir T. Lauder	*Circulation and Respiration.* 2nd series ..	1916
Bumstead and Taylor	*Venereal Diseases*	1879
Clarke, J. J.	*Protozoa and Disease* .. .. .. Pt. IV.	1915
Coupland, S.	*The Harveian Oration*	1915
Collie, T.	*Collect Reprints.* 2nd series	1916
Da Costa	*Medical Diagnosis*	1879
Despard, L. L. ..	*Hand-Book of Massage for Beginners*	1916
Dockrell, N.	*Atlas of Dermatology*	1905
Draper, J. W.	*Studies in Surgical Pathological Physiology* ..	1915
Flint, F.	*Practice of Medicine*	1887
Gee, S. J.	*Medical Lectures and Clinical Aphorisms* 4th Ed.	1915
Greene, Clayton ..	*Pye's Surgical Handicraft* .. .. 7th Ed.	1916
Groves, E. W. Hey	*Modern Methods of Treating Fractures*	1916
Harrison, J.	*Three Ballads*	1869
Hewer, J. L.	*Our Baby* .. .. 15th Ed.	1916
Hutchinson and Rainy	*Clinical Methods* .. .. 6th Ed.	1916
Jack, W. R.	*Wheeler's Handbook of Medicine* .. 5th Ed.	1916
Kelson, W. H. ..	*Diseases of the Throat, Nose and Ear*	1916
Kendrick	*Back Injuries*	1916
Kettle, E. H.	*Pathology of Tumours*	1916
Lancereaux	*Treatise of Syphilis* .. .. Vol. I.	1868
Lancereaux	*Treatise of Syphilis* .. .. Vol. II.	1869
Lane, Sir A.	*Hare Lip and Cleft Palate* .. .. 3rd Ed.	1916
Mackenzie, Sir James	*Diagnosis and Treatment in Heart Affections*	1916
Morrison, Rutherford	*Surgical Contributions* .. .. .. Vol. I.	1916
Morrison, Rutherford	*Surgical Contributions* .. .. .. Vol. II.	1916
Moullin, C. M. ..	*The Biology of Tumours*	1916
Oliver, G.	*Studies in Blood-Pressure* .. .. .. 3rd Ed.	1916
Penhallow, D. G. ..	*Military Surgery*	1916
Porter, W.	*Diseases of the Nose, Throat and Ears* (Revised by H. Evans during W. Porter's absence on Military Service) .. .. 2nd Ed.	1916
Ramsay, A. B. ..	*Injuries of the Eyes, Nose and Throat*	1916
Scott	*Gould's Practitioners Medical Dictionary* 3rd Ed.	1916
Scott, T. B.	*Modern Medicine and Modern Remedies*	1916
Short, A. Rendle ..	*When to Advise Operation in Surgical Practice*	1916
Sutherland, H. G. ..	*Pulmonary Tuberculosis*	1916
Thomson, St. Clair	*Diseases of the Nose and Throat* .. 2nd Ed.	1916
Walker, Norman ..	*Introduction to Dermatology* .. .. 6th Ed.	1916
Warwick and Tunstall	*First Aid to the Injured and Sick* 8th Ed.	1915
Warwick and Tunstall	*Questions on First Aid to the Injured and Sick*	1915
Weber, T. P.	*Traumatic Pneumonia and Tuberculosis* ..	1916

JOURNALS, REPORTS, AND TRANSACTIONS, etc.

American Association of Obstetricians and Gynecologists, Transactions of the .. .. Vol. XXVII. 1915
American Association of Obstetricians and Gynecologists, Transactions of the .. .. Vol. XXVIII. 1916
American Journal of Medical Sciences .. .. .. Vol. CXLVIII. 1914
American Journal of Obstetrics .. .. Vol. LXXV. 1914
American Journal of Obstetrics .. .. Vol. LXXVI. 1915
American Journal of Surgery .. .. Vol. XXVIII. 1914
American Laryngological Association's Report 1915
American Larnygology, Rhinology, Otology Society, Transactions of the 1915
American Ophthalmology Society, Transactions of the Vol. XIV., Pt. III. 1915
American Ophthalmology Society, Transactions of the Vol. XV. Pt. I. 1916
American Pediatrics Society, Transactions of the 1915
American Surgical Association, Transactions of the Vol. XXXIII. 1915
American Urological Association, Transactions of the .. Vol. VIII. 1914
American Urological Association, Transactions of the .. Vol. IX. 1915
Annual Report of the Smithsonian Institute 1915
Bellevue and Allied Hospitals, Report of the 1914
Boston Medical and Surgical Journal .. .. Vol. CLXXI. 1914
Boston Medical and Surgical Journal .. .. .. Vol. CLXXII. 1915
Bristol Medico-Chirurgical Society .. .. Vol. XXXII. 1914
British Journal of Children's Diseases .. .. Vol. XI. 1914
British Journal of Dermatology .. .. Vol. XXVI. 1914
British Medical Journal .. .. Vol. II. 1914
British Medical Journal .. .. Vol. I. 1915
Canadian Medical Journal .. .. Vol. IV. 1914
Clinical Journal .. .. Vol. XLIII. 1914
Cyclopædia of English Literature .. .. Vol. I. 1858
Cyclopædia of English Literature .. .. Vol. II. 1860
Edinburgh Medical Journal .. .. Vol. XIII. 1914
Edinburgh Medical Journal .. .. Vo. XIV. 1915
Edinburgh University, Calendar of the 1916–7
Encyclopædia Medica .. .. Vol. III. 2nd Ed. 1916
Glasgow Medical Journal .. .. Vol. LXXXII. 1914
Glasgow Medical Journal .. .. Vol. LXXXIII. 1915
Guy's Hospital Reports .. .. Vol. LIII. 1914
Index Catalogue of the Library of the Surgeon-General of the United States Army 1915
Indian Medical Gazette .. .. Vol. XLIX. 1914
International Abstract of Surgery .. .. Vol. XIX. 1914
International Abstract of Surgery .. .. Vol. XX. 1915
John Hopkins Bulletin .. .. Vol. XXV. 1914
Journal of American Medical Association .. .. .. Vol. LXIII. 1914
Journal of Hygiene .. .. Vol. XIV. 1914

Journal of Laryngology .. .. Vol. XXIX. 1914
Journal of Medical Research .. .. Vol. XXXI. 1914
Journal of Medical Research .. .. Vol. XXXII. 1914–5
Journal of Medical Research .. .. Vol. XXXIII. 1915
Journal of Mental Science .. .. Vol. LX. 1914
Journal of Nervous and Mental Diseases .. .. .. Vol. LXI. 1914
Journal of Obstetrics and Gynecology .. .. .. Vol. XXV. 1914
Journal of Obstetrics and Gynecology .. .. .. Vol. XXVI. 1915
Journal of Parasitology .. .. Vol. VII. 1914
Journal of the Royal Sanitary Institute .. .. .. Vol. XXXV. 1914
Journal of Tropical Medicine .. .. Vol. XVII. 1914
Journal of Tuberculosis .. .. Vol. VIII. 1914
Lancet, The .. .. Vol. II. 1914
Lancet, The .. .. Vol. I. 1915
Medical Annual, The 1916
Medical Annual Index, The 1915
Medical Press and Circular, The .. .. Vol. CL. 1914
Medical Press and Circular, The .. .. Vol. CLI. 1915
Medical Register, The .. .. Vol. I. 1825
Medical Review, The .. .. Vol. XVII. 1914
Medical Review, The .. .. Vol. I. 1841
Medical Review, The .. .. Vol. II. 1842
Medical Society's Transactions, The .. .. .. Vol. XXXVII. 1916
Medical and Surgical Report of the Roosevelt Hospital 1915
Mercy and Truth .. .. Vol. II. 1898
New Zealand Medical Directory, The 1915
Ophthalmology Society of the United Kingdom, Transactions of the 1915
Pharmaceutical Society of Great Britain, Calendar of the 1915–6
Practitioner, The .. .. Vol. XCIII. 1914
Practitioner, The .. .. Vol. XCIV. 1915
Proceedings of the Royal Society of Medicine .. .. Vol. VII. 1914
Public Health .. .. Vol. XXVII. 1914
Public Health .. .. Vol. XXVIII. 1915
Medical Officer, The .. .. Vol. XII. 1914
Medical Officer, The .. .. Vol. XIII. 1915
Royal Academy of Medicine of Ireland, Transactions of the Vol. XXXIII. 1915
Royal Academy of Medicine of Ireland, Transactions of the Vol. XXXIV. 1916
Royal College of Surgeons of England, Calendar of the 1916–7
Rules for the Prevention of Infectious Diseases in Schools 1915
St. Bartholomew's Hospital Reports 1915
St. John Hopkins Hospital Reports 1916
St. Thomas Hospital Reports 1913
Surgery, Gynecology and Obstetrics .. .. Vol. XIX. 1914
Surgery, Gynecology and Obstetrics .. .. Vol. XX. 1915
Therapeutic Gazette .. .. Vol. XXXVIII. 1914
West London Medical Journal .. .. Vol. XIX. 1914
Year-Book of the Open Air Schools and Children's Sanatoriums .. 1915

Obituary.

JOHN EWENS, L.R.C.P. Lond., L.R.C.S. Edin.

WITH much regret we have to record the death of one who represented our medical confrères of the last century, for Mr. John Ewens was in his eighty-seventh year, when, after a few days' illness, he passed quietly away on December 14th.

He passed his student career at St. George's Hospital, London, qualifying in 1851. From 1876 to 1896 he was Honorary Surgeon to the Royal Hospital for Sick Children and Women, and subsequently Honorary Consulting Surgeon, as well as Consulting Surgeon to the Bristol Home for Blind Women.

But though a familiar figure in medical practice, and at the meetings of the Medico-Chirurgical Society so many years ago, he was a remarkably active man till within the last few years, and was visiting his patients within a month of his death. No one whose privilege it was to know Mr. Ewens can have failed to be impressed with his kindly disposition and great courtesy. He was a keen Churchman, and known as a strong upholder of evangelical views. Though reaching a ripe old age, he still had a very large circle of friends, not confined to his own day and generation, which indeed he had largely outlived, but amongst his juniors, by whom he was much beloved.

Local Medical Notes.

Results of recent examinations :—

UNIVERSITY OF BRISTOL.—*M.B., Ch.B. (Final) :* O. C. M. Davis,* Hilda H. Ewens.* *Part I. :* Edwin J. Ball. *Intermediate :* Elizabeth Casson, B. A. Astley Weston, R. F. White. *Second Examination, Part I. :* Hilda M. Brown, S. Datta, Marjorie S. Neville, T. H. A. Pinniger. *First Examination :* W. L. C. Cossham, S. Datta, H. F. Parsons, Nan Susan J. Roberts, Marjorie Wasworth.

L.D.S.—*Final Examination :* R. L. O'Sullivan. *Second Examination :* J. L. Delicati, W. H. Shipway. *First Examination :* N. Bayly, S. W. Bodenham, L. O. Bodey, V. Bourgeois. *Examination for D.P.H. (Part I.) :* J. H. Harper.

UNIVERSITY OF LONDON.—*Third Examination for M.B., B.S. :* D. G. C. Tasker.* *Group II. :* A. W. Adams,* *Second Examination for Anat. Physiology :* R. F. White.

Royal College of Physicians and Surgeons.—CONJOINT L.R.C.P., M.R.C.S. : Louisa Margaret Lister,* A. G. Morris,* D. M. Smith,* D. G. C. Tasker,* G. C. Williams,* H. B. Logan. *Medicine :* F. C. A. Frith, D. L. Lees, H. Archer. *Surgery :* D. L. Lees, R. H. Tasker, T. D. Morgan, Emmerson Healin. *Midwifery :* A. H. Moris. *Anatomy and Physiology :* N. C. Cooper. *Chemistry and Physics :* R. M. Ealand. *Biology :* A. E. Mills.

Royal College of Surgeons.—*Primary, Anatomy and Physiology :* G. V. W. Anderson. *L.D.S. (Final), Part I. :* A. Williams. *Preliminary L.D.S. :* E. R. Pfaff.

Society of Apothecaries of London.—L.S.A. : H. Archer.* *Anatomy and Physiology :* J. F. E. Burns, W. H. Hazell, A. E. Young. *Physiology :* N. H. Kettlewood.

* Denotes qualification.

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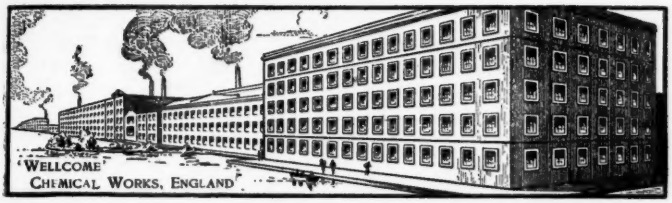

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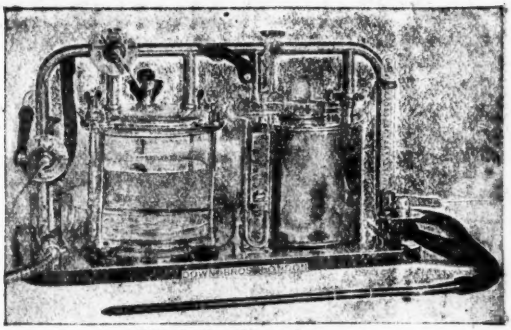

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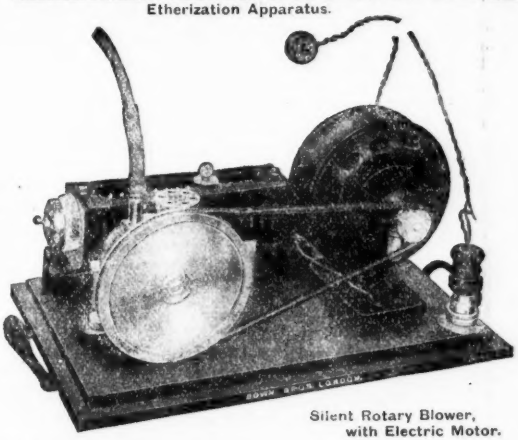

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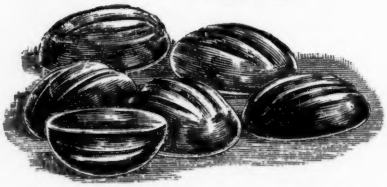

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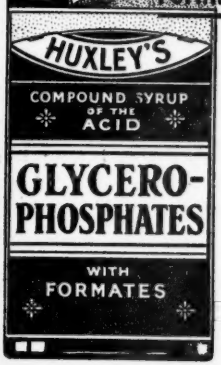

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NEPENTHE

A preparation derived ENTIRELY FROM OPIUM by a process which, whilst eliminating all those constituents that give rise to disagreeable after-effects, retains, in the fullest degree, the unrivalled sleep-producing and pain-allaying properties of the drug.

We desire to direct attention to the following letter from a member of the Medical Profession, speaking of the benefit derived from the administration of **NEPENTHE** in his own case.

Dear Sirs,

This letter (written with the left hand) is intended to convey my intense gratitude for the NEPENTHE received on Tuesday.

I have had a cycle accident, resulting in severe concussion and a compound comminuted T-shaped fracture of the lower end of right humerus, communicating with the joint.

I suffered a great deal from pain and shock.

Morphia, though clearly indicated, was given with dire results—foul tongue, headache, and, worst of all, intense skin irritation; the after-effects of the morphia were so marked that it had to be stopped. Various hypnotics had been tried and proved useless, and in desperation a dose of Morphia was given on Monday night; result—intense urticaria, swollen lips, hands and joints.

On Tuesday I got the NEPENTHE; the effects were immediate and astounding—quiet, restful sleep; after-effects—no headache, clean tongue, bowels acting, and for the first time since my accident I had a desire for food at lunch and dinner yesterday.

The comfort I have received has been so great that I wish you to bring the case to the notice of the Profession in a strictly legitimate way.

Yours faithfully,

—— ——, M.B., C.M. (Aberdeen).

Sent out in the following forms:—

NEPENTHE (ordinary), in 2 oz., 4 oz., 8 oz. and 16 oz. Bottles.

GLYCEROLE OF NEPENTHE, for Hypodermic injection (8 times the single strength), in 1 oz. Bottles.

DOUBLE STRENGTH NEPENTHE, in 2 oz., 4 oz., 8 oz. and 16 oz. Bottles.

NEPENTHE SUPPOSITORIES, in boxes of 3 doz. (in moulds of distinctive shape), four strengths, equivalent to ½ gr., ¼ gr., ½ gr. and 1 gr. Morphia respectively.

Preparations which make various claims to unique merit are continually being offered to the Profession. They generally prove exaggerated and ephemeral. The reputation of Nepenthe is based not on our advertisements but on the experience of thousands of practitioners of successive generations.

N.B. **When the prices of nearly all sedatives have been considerably advanced, we may be pardoned for calling attention to the fact that the price of "Nepenthe" remains unaltered.**

SOLE MAKERS AND PROPRIETORS—

FERRIS & CO. Ltd., BRISTOL.